

CITIGROUP INC  
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**INDEX SUPPLEMENT NO. IS-02-02**

**(To the prospectus and prospectus supplement each dated May 14, 2018)**

**Citigroup Global Markets Holdings Inc.**

**Medium-Term Senior Notes, Series N**

**Payments Due from Citigroup Global Markets Holdings Inc.**

**Fully and Unconditionally Guaranteed by Citigroup Inc.**

**Notes Linked to the Citi Dynamic Asset Selector 5 Excess Return Index**

This index supplement sets forth terms that will apply generally to notes that we may offer from time to time using this index supplement. The specific terms of a particular issuance of notes will be set forth in a pricing supplement that we will deliver in connection with that issuance. If the terms specified in any pricing supplement are inconsistent with the terms specified in this index supplement or in the accompanying prospectus supplement or prospectus, the terms specified in the applicable pricing supplement will control. We refer to all notes offered under this index supplement as the “notes.”

**Underlying Index.** The notes will be linked to the performance of the Citi Dynamic Asset Selector 5 Excess Return Index (the “Index”). The Index was developed by Citigroup Global Markets Limited (the “Index Sponsor”), an affiliate of Citigroup Global Markets Holdings Inc. You should carefully review the sections “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” and “Risk Factors Relating to the Notes” in this index supplement for more information about the Index and for a discussion of important risks relating to the Index.

**Payment at Maturity.** The notes provide for the repayment of the stated principal amount at maturity, regardless of the performance of the Index. If so specified in the applicable pricing supplement, the notes offer the possibility of an additional payment at maturity based on the performance of the Index.

**Coupon.** The notes will not pay a coupon unless the applicable pricing supplement specifically provides otherwise. If the applicable pricing supplement provides for the payment of a coupon, the coupon rate, which may be fixed or may vary depending on the performance of the Index or otherwise, and the coupon payment date(s) will be specified in the applicable pricing supplement.

**No Guaranteed Return on Your Investment.** The notes do not guarantee any positive return on your investment, unless otherwise specified in the applicable pricing supplement. Any potential payment on the notes that depends on the performance of the Index may be zero, unless otherwise specified in the applicable pricing supplement. In that event, you will only receive the stated principal amount at maturity of the notes and will not be compensated for the time value of money.

**Credit Risk.** The notes are unsecured senior debt securities of Citigroup Global Markets Holdings Inc., and the guarantee of the notes is an unsecured obligation of Citigroup Inc. Accordingly, all payments on the notes are subject to the credit risk of Citigroup Global Markets Holdings Inc. and Citigroup Inc. If Citigroup Global Markets Holdings Inc. and Citigroup Inc. default on their obligations, you may not receive any payment owed to you under the notes, including the repayment of principal at maturity.

**No Listing.** The notes will not be listed on any securities exchange, unless otherwise specified in the applicable pricing supplement. Accordingly, unless otherwise specified, the notes may have limited or no liquidity, and you should not invest in the notes unless you are willing to hold them until maturity. You are entitled to the repayment of the stated principal amount (and any other amount that may be payable at maturity) only if you hold the notes at maturity.

**Not Equivalent to Investing in the Index.** Investing in the notes is not equivalent to investing directly in the constituents of the Index. You will not have any ownership interest or any other right with respect to the constituents of the Index.

**Tax Consequences.** For important information regarding certain tax consequences of investing in the notes, see “United States Federal Tax Considerations” beginning on page IS-43.

You should carefully review the specific terms of the notes described in the applicable pricing supplement together with the information contained in this index supplement and the accompanying prospectus supplement and prospectus before investing in the notes.

**Investing in the notes is subject to risks not associated with an investment in conventional debt securities. See “Risk Factors Relating to the Notes” beginning on page IS-8.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the notes or determined if this index supplement, the accompanying prospectus supplement and prospectus or any pricing supplement is truthful or complete. Any representation to the contrary is a criminal offense.**

The notes, and the guarantee of the notes by Citigroup Inc., are not deposits or savings accounts but are, respectively, unsecured debt obligations of Citigroup Global Markets Holdings Inc. and unsecured obligations of Citigroup Inc. The notes are not insured or guaranteed by the Federal Deposit Insurance Corporation or by any other governmental agency or instrumentality.

Investment Products Not FDIC Insured May Lose Value No Bank Guarantee

**Citigroup**

April 3, 2019

We are responsible for the information contained or incorporated by reference in this index supplement, the accompanying prospectus supplement and prospectus and any applicable pricing supplement. We have not authorized anyone to give you any other information, and we take no responsibility for any other information that others may give you. You should not assume that the information contained or incorporated by reference in this index supplement, the accompanying prospectus supplement and prospectus or any applicable pricing supplement is accurate as of any date other than the date on the front of such document. We are not making an offer of these notes in any state where the offer is not permitted.

## TABLE OF CONTENTS

### Index Supplement

About This Index Supplement	IS-3
Summary Description of the Index	IS-4
Summary Payment Terms	IS-7
Risk Factors Relating to the Notes	IS-8
Description of the Notes	IS-19
Description of the Citi Dynamic Asset Selector 5 Excess Return Index	IS-24
Benefit Plan Investor Considerations	IS-41
United States Federal Tax Considerations	IS-43
Descriptions of the Constituents	IS-50
Annex A	IS-58

### Prospectus Supplement

Risk Factors	S-1
Important Currency Information	S-4
Forward-Looking Statements	S-5
Description of the Notes	S-6
United States Federal Tax Considerations	S-14
Plan of Distribution	S-25
Conflicts of Interest	S-26
Benefit Plan Investor Considerations	S-31
Legal Matters	S-33

### Prospectus

Prospectus Summary	1
Forward-Looking Statements	6
Citigroup Inc.	6
Citigroup Global Markets Holdings Inc.	9
Use of Proceeds and Hedging	10
European Monetary Union	12
Description of Debt Securities	12
Currency Conversions and Foreign Exchange Risks Affecting	
Debt Securities Denominated in a Foreign Currency	24
Plan of Distribution	26
Legal Matters	28

Experts

28

IS-2

## About this INDEX Supplement

The pricing supplement for a particular issuance of notes will describe certain specific terms of those notes, but will not describe all of the material terms of those notes or contain all of the other material disclosures that you should consider before investing in those notes. The material terms of the notes and other material disclosures that are not contained in the applicable pricing supplement are set forth in this index supplement and, to the extent not set forth in this index supplement, in the accompanying prospectus supplement and prospectus. Accordingly, it is important that you read the applicable pricing supplement together with this index supplement and the accompanying prospectus supplement and prospectus and before investing in the notes.

You may find the prospectus and prospectus supplement each dated May 14, 2018 here:

<https://www.sec.gov/Archives/edgar/data/200245/000119312518162183/d583728d424b2.htm>

References in this index supplement, the applicable pricing supplement and the accompanying prospectus supplement and prospectus, to “we,” “our” or “us” are to Citigroup Global Markets Holdings Inc., and not any of its subsidiaries, unless the context indicates otherwise.

## Summary Description of the Index

The Citi Dynamic Asset Selector 5 Excess Return Index (the “Index”) is published by Citigroup Global Markets Limited (the “Index Administrator”), which is an affiliate of ours. The Index tracks the hypothetical performance of a rules-based investment methodology that, on each Index Business Day, seeks to identify current U.S. equity market conditions as falling within one of four possible “Market Regimes” based on trend and volatility signals (the “Signals”). Depending on the identified Market Regime, Index exposure is allocated to one of three possible hypothetical investment “Portfolios”, each consisting of varying degrees of exposure to the following two “Constituents”:

<b>Asset Class</b>	<b>Constituent</b>	<b>Ticker</b>	<b>Underlying Futures Contract</b>	<b>Reference Asset</b>	<b>Market Sector</b>
<b>Equity futures</b>	S&P 500 Futures Excess Return Index (the “ <b>U.S. Equity Futures Constituent</b> ”)	SPXFP<Index>	E-mini S&P 500 Futures	S&P 500® Index	U.S. large-cap equities
<b>Fixed income futures</b>	S&P 10-Year U.S. Treasury Note Futures Excess Return Index (the “ <b>U.S. Treasury Futures Constituent</b> ”)	US10YF<Index>	10-Year U.S. Treasury Note Futures	10-Year U.S. Treasury Notes	U.S. 10-year treasuries

The U.S. Equity Futures Constituent tracks the performance of a hypothetical investment, rolled quarterly, in the nearest-to-expiration E-mini S&P 500 futures contract, which provides exposure to U.S. large-cap equities. The U.S. Treasury Futures Constituent tracks the performance of a hypothetical investment, rolled quarterly, in the nearest-to-expiration 10-Year U.S. Treasury Note futures contract, which provides exposure to U.S. Treasury notes with a remaining maturity of at least 6.5 years and an original maturity not exceeding 10 years (all of which are referred to collectively as “10-Year U.S. Treasury Notes”). Because each Constituent is a futures-based index, the performance of each Constituent is expected to reflect not only the performance of its underlying Reference Asset (as indicated in the table above), but also the implicit cost of a financed position in that Reference Asset, which will reduce the performance of each Constituent. See “Descriptions of the Constituents.”

The Index relies on backward-looking trend and volatility Signals to determine which Market Regime is currently in effect and, in turn, which Portfolio to track until there is a change in the Market Regime (the Portfolio tracked at any time being referred to as the “Selected Portfolio” at that time). On each Index Business Day, the Index calculates:

The trend of the performance of the U.S. Equity Futures Constituent over a look-back period of 21 Index Business Days, measured by the linear regression methodology described in “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” (the “Trend Signal”). The Trend Signal will be either “upward” or “downward”.

The realized volatility of the U.S. Equity Futures Constituent over a look-back period of 63 Index Business Days (the “Volatility Signal”).

The following table indicates the Market Regime that will be identified for each possible combination of the Signals and, for each Market Regime, the corresponding Portfolio that will be selected as the Selected Portfolio to be tracked by the Index until there is a change in the Market Regime.

<b>Signals</b>	<b>Market Regime</b>	<b>Selected Portfolio (consisting of the Constituents with the percentage weights indicated below)</b>
Ø Trend Signal: <b>Upward</b>		<b>Equity-Focused Portfolio</b>
	<b>Stable-Trending Up</b>	Ø U.S. Equity Futures Constituent: <b>66.66%</b> Ø U.S. Treasury Futures Constituent: <b>33.33%</b> <b>Intermediate Portfolio</b>
Ø Volatility Signal: <b>Less than or equal to 15%</b>		
	<b>Unstable-Trending Up</b>	Ø U.S. Equity Futures Constituent: <b>33.33%</b> Ø U.S. Treasury Futures Constituent: <b>66.66%</b>
Ø Trend Signal: <b>Upward</b>		

Ø Volatility Signal: **Greater than 15%**

Ø Trend Signal: **Downward**

Ø Volatility Signal: **Less than or equal to 15%**      **Stable-Trending Down**

Ø Trend Signal: **Downward**

Ø Volatility Signal: **Greater than 15%**

**Treasury Portfolio**

**Unstable-Trending  
Down**

Ø U.S. Equity Futures Constituent: **0.00%**

Ø U.S. Treasury Futures Constituent:  
**100.00%**

Once a Selected Portfolio has been selected, the Index will continue to have exposure to that Selected Portfolio until the Signals indicate that there has been a change in the Market Regime, at which point the Index exposure will be allocated to a different Selected Portfolio. However, if the Trend Signal fails to meet a test of statistical significance, then a change in the Market Regime will not occur and the Selected Portfolio will not change even if the Signals would otherwise call for a change.

The Index includes a volatility-targeting feature, pursuant to which the Index may reduce its exposure to the Selected Portfolio if necessary in an attempt to maintain a volatility target of 5%. On any Index Business Day, if the realized volatility of the current Selected Portfolio was greater than 5% over a look-back period of 21 Index Business Days, the Index will have less than 100% exposure to the Selected Portfolio. The difference between 100% and the exposure that the Index has to the Selected Portfolio will be hypothetically allocated to cash and will accrue no interest or other return.

The performance of the Index will be reduced by an index fee of 0.85% per annum.

This section contains only a summary description of the Index and does not describe all of its important features in detail. Before investing in the notes, you should carefully review the more detailed description of the Index contained in the section “Description of the Citi Dynamic Asset Selector 5 Excess Return Index.”

The Index is subject to important risks, including the following:



The Index is a trend-following index and is subject to the limitations inherent in all trend-following methodologies, including the fact that past performance is no guarantee of future performance. Furthermore, the Index's trend-following methodology may be unsuccessful even if past trends do prove to be indicative of future performance, because the Trend Signal may not accurately capture the trend or the Index may not change its Selected Portfolio quickly enough in response to changes in the Market Regime.

Each Constituent is a futures-based index and is therefore expected to reflect the implicit cost of a financed position in its Reference Asset. This implicit financing cost will adversely affect the level of each Constituent and cause each Constituent to underperform its Reference Asset. Any increase in market interest rates will be expected to increase this implicit financing cost and will further adversely affect the performance of the Constituents and, therefore, the performance of the Index.

The Index rules limit the exposure the Index may have to the U.S. Equity Futures Constituent and, as a result, the Index is likely to significantly underperform equities in rising equity markets.

The Index will have significant exposure to the U.S. Treasury Futures Constituent, which has limited return potential and significant downside potential, particularly in times of rising interest rates.

The volatility-targeting feature significantly reduces the potential for Index gains. At any time when the Index has less than 100% exposure to the Selected Portfolio, the Index will participate in only a limited degree of the performance of the Selected Portfolio.

The performance of the Index will be reduced by an index fee. The index fee will place a drag on the performance of the Index, offsetting any appreciation of the Selected Portfolio, exacerbating any depreciation of the Selected Portfolio and causing the level of the Index to decline steadily if the value of the Selected Portfolio remains relatively constant.

The Index was launched on June 13, 2016 and, therefore, has a limited performance history.

For more information about the important risks affecting the Index, you should carefully read the section “Risk Factors Relating to the Notes.”

The Selected Portfolio is a hypothetical investment portfolio. There is no actual portfolio of assets to which any investor is entitled or in which any investor has any ownership or other interest. The Index is merely a mathematical calculation that is performed by reference to hypothetical positions in the Constituents.

## Summary Payment Terms

The particular payment terms of the notes will be set forth in the applicable pricing supplement and will be linked to the performance of the Index. The notes provide for the repayment of the stated principal amount at maturity, regardless of the performance of the Index. The notes may pay coupon payments at a rate that varies based on the performance of the Index, or the notes may not pay interest and may instead provide for a single payment at maturity based on the performance of the Index. The specific terms of the notes will be specified in the applicable pricing supplement.

Any potential payment on the notes that depends on the performance of the Index may be positive, or it may be zero, depending on the specific terms of the notes. You should carefully read the applicable pricing supplement to understand the payment terms of the notes and the circumstances in which you may not receive any return on your investment in the notes. The specific terms of the notes will be determined on the date we price the notes for initial sale to the public, which we refer to as the “Pricing Date.”

Any potential payment on the notes that depends on the performance of the Index will be based on the Closing Level of the Index on one or more dates specified in the applicable pricing supplement (each, a “Valuation Date”), subject to the specific terms set forth in the applicable pricing supplement.

**In addition to the risks associated with the performance of the Index, all payments due on the notes are subject to the credit risk of Citigroup Global Markets Holdings Inc. and Citigroup Inc., as guarantor of the obligations of Citigroup Global Markets Holdings Inc. If Citigroup Global Markets Holdings Inc. and Citigroup Inc. default on their obligations under the notes, you may not receive any payment owed to you, including the repayment of the stated principal amount of your notes at maturity.**

Before deciding whether to invest in the notes, you should carefully read and understand the sections “Risk Factors Relating to the Notes” and “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” in this index supplement as well as the particular terms and risk factors described in the applicable pricing supplement.

Certain events may happen that could affect any payment owed to you under the notes, such as the occurrence of market disruption events or other events affecting the Index. Those events are described in this index supplement under “Description of the Notes” and “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” and will not be repeated in the applicable pricing supplement. As a result, you should carefully review and understand the section “Description of the Notes” and “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” in this index supplement.

## **Risk Factors Relating to the Notes**

An investment in the notes is significantly riskier than an investment in conventional debt securities. The notes are subject to all of the risks associated with an investment in our conventional debt securities, including the risk that we may default on our obligations under the notes, and are also subject to risks associated with the Index because your return on the notes will depend on the performance of the Index.

## **Risk Factors Relating to All Notes**

*You May Not Receive Any Return On Your Investment in the Notes, in Which Case You Will Suffer a Loss On Your Investment in Real Value Terms.* Your return on the notes, if any, will depend on the performance of the Index. If the Index does not perform favorably (which will depend on the specific terms of the notes set forth in the applicable pricing supplement), you may not receive any return on your investment in the notes. Although the notes provide for the repayment of the stated principal amount at maturity regardless of the performance of the Index, you may nevertheless suffer a loss on your investment in the notes, in real value terms, if you do not receive a positive return on the notes. This is because inflation may cause the real value of the stated principal amount to be less at maturity than it is at the time you invest, and because an investment in the notes represents a forgone opportunity to invest in an alternative asset that does generate a positive return. The potential loss in real value terms will be greater the longer the term of the notes.

Even if you do receive a positive return on your investment in the notes, there can be no assurance that your total return at maturity on the notes will compensate you for the effects of inflation or be as great as the return you could have achieved on a conventional debt security of Citigroup Global Markets Holdings Inc. (guaranteed by Citigroup Inc.) of comparable maturity. You should carefully consider whether an investment that may not provide for any return on your investment, or may provide a return that is lower than the return on conventional debt securities, is appropriate for you.

*The Notes Will Not Pay Any Coupon Unless Otherwise Specified in the Applicable Pricing Supplement.* Unless the applicable pricing supplement specifies that the notes will pay a coupon, the notes will not pay any interest or provide for any other payments prior to maturity. Accordingly, unless the applicable pricing supplement specifically provides for a coupon payment, you should not invest in the notes if you seek current income during the term of the notes.

*If the Notes Provide For a Coupon That Depends on the Performance of the Index, the Coupon Payment May Be Zero on One or More Coupon Payment Dates.* If the applicable pricing supplement provides for a coupon payment but the amount of such payment varies depending on the performance of the Index or otherwise, you should understand that you may not receive any payment on one or more (or any) coupon payment dates during the term of the notes. You should not invest in notes with such terms if you seek certainty of receiving current income during the term of the notes.

*If a Maximum Return Applies to the Notes, Your Return on the Notes Will Be Limited.* If applicable, the maximum return will be a percentage of the stated principal amount of the notes that will be determined on the Pricing Date and set forth in the applicable pricing supplement. Your total return at maturity on notes with a maximum return will be limited to the specified maximum return (excluding any coupon payments, if applicable), even if the return of the Index is significantly greater. You should not invest in notes that have a maximum return if you seek to participate in the full appreciation of the Index.

*The Notes are Subject to the Credit Risk of Citigroup Global Markets Holdings Inc. and Citigroup Inc., the Guarantor of any Payments Due on the Notes.* You are subject to the credit risk of Citigroup Global Markets Holdings Inc. and Citigroup Inc. The notes are not guaranteed by any entity other than Citigroup Inc. Any actual or anticipated changes to Citigroup Global Markets Holdings Inc.'s or Citigroup Inc.'s credit ratings or credit spreads may adversely affect the value of the notes. If Citigroup Global Markets Holdings Inc. defaults on its obligations and Citigroup Inc. defaults on its guarantee obligations under the notes, your investment will be at risk and you could lose some or all of your investment. As a result, the value of the notes prior to maturity will be affected by changes in the market's view of Citigroup Global Markets Holdings Inc.'s and Citigroup Inc.'s creditworthiness. Any decline, or anticipated decline, in either of their credit ratings or increase, or anticipated increase, in the credit spreads charged by the market for taking either of their credit risk is likely to adversely affect the value of the notes.

*Sale of the Notes Prior to Maturity May Result In a Loss of Principal.* You will be entitled to receive at least the full stated principal amount of your notes, subject to the credit risk of Citigroup Global Markets Holdings Inc. and Citigroup Inc., only if you hold the notes to maturity. The value of the notes may fluctuate during the term of the notes, and if you are able to sell your notes prior to maturity, you may receive less than the full stated principal amount of your notes.

*The Notes Will Not Be Listed on a Securities Exchange and You May Not Be Able To Sell Your Notes Prior To Maturity.* Unless otherwise specified in the applicable pricing supplement, the notes will not be listed on a securities exchange. Accordingly, the notes may have limited or no liquidity, and you should not invest in the notes unless you are willing to hold them to maturity.

Citigroup Global Markets Inc. (“CGMI”) or, if applicable, any other entity named as underwriter or agent in the applicable pricing supplement may, but is not obligated to, make a market in the notes. If CGMI or such other underwriter or agent does make a market in the notes, it may discontinue doing so at any time. Because we do not expect that other broker-dealers will participate significantly in any secondary market for the notes, the price at which you may be able to sell your notes prior to maturity is likely to depend on the price, if any, at which CGMI or such other underwriter or agent is willing to transact. If at any time CGMI or such other underwriter or agent were not to make a market in the notes, it is likely that there would be no secondary market at all for the notes. The price, if any, at which CGMI, such other underwriter or agent or any other buyer may be willing to purchase your notes in any secondary market that may develop may be significantly less than the stated principal amount; therefore, any sale of the notes prior to maturity may result in a substantial loss. As a result, you should be prepared to hold your notes to maturity.

*The Value Of Your Notes Prior To Maturity Will Fluctuate Based On Many Unpredictable Factors.* The value of your notes prior to maturity will fluctuate based on the level of the Index and a number of other factors, including those described below. Some of these factors are interrelated in complex ways. As a result, the effect of any one factor may be offset or magnified by the effect of one or more other factors. The paragraphs below describe what we expect to be the impact on the value of the notes of a change in a specific factor, assuming all other conditions remain constant. You should understand that the value of your notes at any time prior to maturity may be significantly less than the stated principal amount.

*Level of the Index.* We expect that the value of the notes at any time will depend substantially on the level of the Index at that time. If the level of the Index declines following the Pricing Date, the value of your notes will also likely decline, perhaps significantly. Even at a time when the level of the Index exceeds its level on the Pricing Date, the value of your notes may nevertheless be significantly less than the stated principal amount of your notes because of expectations that the level will continue to fluctuate over the term of the notes, among other reasons.

The level of the Index will be influenced by the value and volatility of its Constituents, as well as by complex and interrelated political, economic, financial and other factors that affect the capital markets generally. Hedging by us or our counterparties (which may include our affiliates), the issuance of other securities similar to the notes and other trading activities by our affiliates may also affect the level, which could negatively affect the value of the notes.

*Volatility of the Index.* Volatility refers to the magnitude and frequency of changes in level over any given period. Any change in the expected volatility of the Index may adversely affect the value of the notes.

*Interest Rates.* We expect that the value of the notes will be affected by changes in U.S. interest rates. In general, if U.S. interest rates increase, the value of the notes may decrease.

*Time Remaining to Maturity.* At any given time, a portion of the value of the notes will be attributable to time value, which is based on the amount of time then remaining to maturity. You should understand that the value of the notes may be adversely affected solely as a result of the passage of time.

IS-9

*Creditworthiness of Citigroup Global Markets Holdings Inc. and Citigroup Inc.* The notes are subject to the credit risk of Citigroup Global Markets Holdings Inc. and Citigroup Inc., the guarantor of any payments due on the notes. Therefore, actual or anticipated changes in either of their credit ratings or credit spreads may affect the value of the notes.

It is important for you to understand that the impact of one of the factors discussed above may offset, or magnify, some or all of any change in the value of the notes attributable to one or more of the other factors.

*Our Affiliates May Have Published Research, Expressed Opinions or Provided Recommendations that are Inconsistent With Investing in the Notes and May Do So in the Future, and any such Research, Opinions or Recommendations Could Adversely Affect the Level of the Index.* CGMI and other of our affiliates may publish research from time to time relating to the financial markets, any of the Constituents of the Index or the hypothetical investment methodology of the Index. Any research, opinions or recommendations provided by CGMI may influence the level of any Constituent, and they may be inconsistent with purchasing or holding the notes. CGMI and other of our affiliates may have published or may publish research or other opinions that call into question the investment view implicit in an investment in the notes. Any research, opinions or recommendations expressed by such affiliates of ours may not be consistent with each other and may be modified from time to time without notice. Investors should make their own independent investigation of the constituents of the Index, the Index itself and the merits of investing in the notes.

*The Level of a Constituent or of the Index May Be Affected by Our or Our Affiliates' Hedging and Other Trading Activities.* In anticipation of the sale of the notes, we expect to hedge our obligations under the notes directly or through one of our affiliates, which may involve taking positions directly in the futures contracts underlying the Constituents of the Index or other instruments that may affect the levels of the Constituents. We or our counterparties may also adjust this hedge during the term of the notes and close out or unwind this hedge on or before any Valuation Date, which may involve, among other things, us or our counterparties purchasing or selling such futures contracts or other instruments. This hedging activity on or prior to the Pricing Date could potentially affect the levels of the Constituents on the Pricing Date and, accordingly, potentially increase the Initial Index Level, which may adversely affect your return on the notes. Additionally, this hedging activity during the term of the notes, including on or near any Valuation Date, could negatively affect the level of the Index and, therefore, adversely affect your payment at maturity on the notes. This hedging activity may present a conflict of interest between your interests as a holder of the notes and the interests we and/or our counterparties, which may be our affiliates, have in executing, maintaining and adjusting hedging transactions. These hedging activities could also affect the price, if any, at which CGMI or, if applicable, any other entity may be willing to purchase your notes in a secondary market transaction.

We and our affiliates may also trade the futures contracts underlying the Constituents and/or other instruments that may affect the levels of the Constituents on a regular basis (taking long or short positions or both), for our or their accounts, for other accounts under management or to facilitate transactions, including block transactions, on behalf of customers. As with our or our affiliates' hedging activity, this trading activity could affect the levels of the Constituents on any Valuation Date and, therefore, adversely affect the performance of the Index and the notes.



It is possible that these hedging or trading activities could result in substantial returns for us or our affiliates while the value of the notes declines.

*We and Our Affiliates May Have Economic Interests That Are Adverse to Those of the Holders of the Notes as a Result of Our or Our Affiliates' Business Activities.* We or our affiliates may currently or from time to time engage in business with the issuers of the stocks that constitute the Reference Asset of the U.S. Equity Futures Constituent, including extending loans to, making equity investments in or providing advisory services to such issuers. In the course of this business, we or our affiliates may acquire non-public information about such issuers, which we will not disclose to you. We do not make any representation or warranty to any purchaser of the notes with respect to any matters whatsoever relating to our or our affiliates' business with any such issuer. Moreover, if we or any of our affiliates are or become a creditor of any such issuer or otherwise enter into any transaction with any such issuer in the regular course of business, we or such affiliate may exercise any remedies against such issuer that are available to them without regard to the impact on your interests as a holder of the notes.

IS-10

*We are the Notes Calculation Agent and, In That Capacity, May Make Important Determinations With Respect to the Notes.* As Notes Calculation Agent, we will determine, among other things, the amount owed to you at maturity of the notes. In addition, if certain events occur, we will be required to make certain discretionary judgments that could significantly affect the amount you receive at maturity. In making these judgments, our interests could be adverse to your interests as a holder of the notes. Such judgments could include, among other things:

- determining whether a Market Disruption Event exists on the Valuation Date with respect to any Constituent;

if the Index Level is not published by the Index Calculation Agent or if a Market Disruption Event exists with respect to any Constituent on the Valuation Date, determining the Closing Level of the Index with respect to that date, which may require us to make a good faith estimate of the closing level of one or both Constituents if the Market Disruption Event is continuing on the Backstop Date; and

selecting a Successor Index or performing an alternative calculation of the Closing Level of the Index if the Index is discontinued.

Any of these determinations made by us, in our capacity as Notes Calculation Agent, may adversely affect any payment owed to you under the notes.

*Discontinuance of the Index Could Adversely Affect the Value of the Notes.* The Index Administrator is not required to publish the Index throughout the term of the notes. The Index Administrator may determine to discontinue the Index, among other reasons, as a result of the occurrence of a material Regulatory Event. See “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” in this Index Supplement for more information. If the Index is discontinued, the Notes Calculation Agent will have the sole discretion to substitute a successor index that is comparable to the discontinued Index and is not precluded from considering other indices that are calculated and published by the Notes Calculation Agent or any of its affiliates. Any such successor index may not perform favorably.

If the Notes Calculation Agent does not select a successor index, then the Closing Level of the Index will be calculated from and after the time of discontinuance based solely on the Selected Portfolio tracked by the Index at the time of discontinuance, without any rebalancing after such discontinuance even if there is a change in the Market Regime. In such an event, the substitute level that is used as the Closing Level of the Index will cease to reflect the Index’s portfolio selection methodology and instead will track the performance of a fixed portfolio of notional assets, which will consist of the Selected Portfolio tracked by the Index (or the Selected Portfolio that would have been tracked by the Index but for the event that resulted in such discontinuance of the Index) immediately prior to such discontinuance. That level may perform unfavorably after the discontinuance. For example, if the Selected Portfolio at the time of discontinuance is the Treasury Portfolio, the substitute Closing Level of the Index will reflect only the performance of the Treasury Portfolio thereafter and will not reflect any exposure to the U.S. Equity Futures Constituent even if there is a bull market in equities. Alternatively, if the Selected Portfolio at the time of discontinuance is the Equity-Focused Portfolio, the substitute Closing Level of the Index will reflect significant exposure to equities thereafter even if there is a significant equity market decline. In such an event, even though the Index will no longer apply its portfolio selection methodology, the index fee will continue to be deducted.

*Certain U.S. Federal Tax Consequences of an Investment in the Notes are Uncertain.* The notes may be assumed by Citigroup Inc., as provided in the accompanying prospectus. The law regarding whether or not such an assumption would be considered a “significant modification” of the notes is not entirely clear and, if the Internal Revenue Service (the “IRS”) were to treat the assumption as a significant modification, a U.S. holder would generally be required to recognize gain (if any) on the notes and the timing and character of income recognized with respect to the notes, as well as the withholding tax consequences to a non-U.S. holder of the notes, after the assumption could be affected significantly. You should read carefully the discussion under “United States Federal Tax Considerations” in this index supplement. You should also consult your tax adviser regarding the U.S. federal tax consequences of an assumption of the notes.

In addition, non-U.S. investors should review the discussion in “United States Federal Tax Considerations—Tax Consequences to Non-U.S. Holders—Possible Withholding Under Section 871(m) of the Code” regarding

IS-11

potential withholding tax risks under Section 871(m) of the Internal Revenue Code of 1986, as amended (the “Code”).

### **Risk Factors Relating to the Index**

*The following discussion of risks relating to the Index should be read together with the section “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” below, which defines and further describes a number of the terms and concepts referred to in this section.*

***The Index May Not Be Successful and May Underperform Alternative Investment Strategies.*** There can be no assurance that the Index will achieve positive returns. The Index tracks the hypothetical performance of a rules-based investment methodology that, based on signals, selects a hypothetical investment portfolio (the Selected Portfolio) to track until the signals determine that a change in U.S. equity market conditions has occurred. The performance of the Index over that period will depend on the performance of the Selected Portfolio over that time period, *minus* the index fee and subject to the Index’s volatility-targeting feature, all as more fully described below. In general, if the Selected Portfolio appreciates over that period by more than the index fee, the level of the Index will increase, and if the Selected Portfolio depreciates over that period or appreciates by less than the index fee, the level of the Index will decrease. The performance of the Index may be less favorable than alternative investment strategies that could have been implemented, including an investment in a passive index fund.

***The Index’s Signal-based Allocation Methodology Has Significant Limitations.*** The Index will allocate exposure to the U.S. Equity Futures Constituent and/or the U.S. Treasury Futures Constituent based on two Signals measured on each Index Business Day: one based on the trend of the performance of the U.S. Equity Futures Constituent, measured by the linear regression methodology described below, over an observation period of 21 Index Business Days (the “**Trend Signal**”) and one based on the realized volatility of the U.S. Equity Futures Constituent over an observation period of 63 Index Business Days (the “**Volatility Signal**”). Based on these Signals, the portfolio tracked by the Index during any given period (the “**Selected Portfolio**”) will be the Equity-Focused Portfolio, the Treasury Portfolio or the Intermediate Portfolio, each of which has a predetermined degree of exposure to the U.S. Treasury Futures Constituent and/or the U.S. Equity Futures Constituent.

#### *Limitations of the Trend Signal*

The Index’s allocation methodology is premised on the assumption that, on an Index Business Day, the Trend Signal may provide an accurate indicator of the performance of the U.S. Equity Futures Constituent until the next Change in Market Regime (i.e., when the Signals indicate that another Selected Portfolio should be selected). In other words, the methodology assumes that the U.S. Equity Futures Constituent is likely to appreciate until the next Change in Market Regime if there is an upward Trend Signal. There is no guarantee that this will be the case, however. The Trend Signal is subject to a number of important limitations, including the following:

*Past Performance May Not Predict Future Performance.* On any given Index Business Day, the fact that the U.S. Equity Futures Constituent may have performed favorably over the prior 21 Index Business Days does not necessarily mean that it will continue to perform favorably going forward. Future market conditions may differ from past market conditions, and the conditions that may have caused the favorable performance over the prior 21 Index Business Days may no longer exist.

*Markets May be Efficient.* Past appreciation may not necessarily be an indicator of future appreciation even if future market conditions do not differ materially from past market conditions. The efficient market hypothesis, a well-known theory in academic financial literature, states that the market is efficient and that current asset prices reflect all available relevant information. If true, the efficient market hypothesis implies that any perceived historical trend in the performance of the U.S. Equity Futures Constituent should not be an accurate predictor of its future performance. If the past performance of the U.S. Equity Futures Constituent proves not to be an accurate indicator of its actual performance over the next period, then the Index's trend-following allocation methodology may perform poorly.

*Time lag.* The Trend Signal measures the performance of the U.S. Equity Futures Constituent over the last month and therefore suffers from a time lag, which may cause it to be late both in signaling an allocation to the U.S. Equity Futures Constituent and in signaling an allocation away from the U.S.

Equity Futures Constituent. The Index determines the trend of the U.S. Equity Futures Constituent based on its levels over an observation period of 21 Index Business Days. If the trend in the performance of the U.S. Equity Futures Constituent changes, it may be a significant period of time before the Trend Signal reflects the change. As a result of this time lag, the Trend Signal may signal an allocation to the U.S. Equity Futures Constituent long after the U.S. Equity Futures Constituent begins to decline, potentially resulting in a significant decline in the level of the Index over a significant period of time. Alternatively, the Trend Signal may not identify the U.S. Equity Futures Constituent as being in an upward trend until long after the upward trend began. By the time the Trend Signal finally signals an allocation to the U.S. Equity Futures Constituent, the trend may already have run its course, and a period of decline may even have already begun. Because the Trend Signal may signal an allocation to the U.S. Equity Futures Constituent after it has already been trending upward for a significant period of time, the Trend Signal may effectively reflect a “buy high” strategy; and because the Trend Signal may signal an allocation away from the U.S. Equity Futures Constituent only after it has already been trending downward for a significant period of time, it may effectively reflect a “sell low” strategy. This combination of buying high and selling low may result in poor Index performance.

*Measurement error.* Even if the historical trend in the level of the U.S. Equity Futures Constituent proves to be a predictor of the future performance of the U.S. Equity Futures Constituent, the way in which the Index measures the trend may not effectively capture it. For example, the Index uses a fixed rule for determining whether the U.S. Equity Futures Constituent is deemed to be in an upward trend or a downward trend: if the straight line that results from a linear regression of the levels of the U.S. Equity Futures Constituent (expressed logarithmically) on each of the Index Business Days in the Trend Measurement Period slopes upward, the Index interprets that as an indicator of an upward trend, and if that line slopes downward, the Index interprets that as an indication of a downward trend. If the U.S. Equity Futures Constituent appreciated during the first half of the prior month and then depreciated over the next half – but the depreciation was not quite as pronounced as the appreciation – the Index may identify an upward trend even though the most recent trend has been downward. In addition, the Index will not change its Selected Portfolio if the Trend Signal is not deemed to be statistically significant, even if the Signals would otherwise call for a change. The Index also uses an arbitrary cut-off, which may not be the optimal cut-off to use for the Index, for determining whether the Trend Signal is statistically significant or not. There are measurements that the Index will deem to be statistically significant that would not be deemed statistically significant if a higher cut-off were chosen. Alternatively, the Index may be overly restrictive and treat as statistically insignificant Trend Signals that in fact contain meaningful information. In this latter case, the Index may retain exposure to a particular Selected Portfolio long after the Signals have been indicating that a new Portfolio should be selected. The Trend Signal is less likely to be statistically significant when there is significant volatility in the levels of the U.S. Equity Futures Constituent, and it may be the case that the current Selected Portfolio will be the Equity-Focused Portfolio, meaning that the Index will be exposed largely to the U.S. Equity Futures Constituent, even though the volatility of the U.S. Equity Futures Constituent is greater than 15%. Any fixed rule for determining whether the U.S. Equity Futures Constituent is in an upward or downward trend and whether such trend will signal a Change in Market Regime will necessarily be a blunt tool and, accordingly, may have a high rate of inaccuracy. The particular ways in which the Index operates may produce a lower return than other rules that could have been adopted for the identification of the trend in the level of the U.S. Equity Futures Constituent. There is nothing inherent in the particular methodology used by the Index that makes it a more or less accurate predictor of a trend. It is possible that the rules used by the Index may not identify the trend as effectively as other rules that might have been adopted, or at all.

*Whipsaws.* Trend-following methodologies may perform particularly poorly in “choppy” markets, where they may be subject to “whipsaws.” Choppy markets are characterized by short-term volatility and the absence of consistent long-term performance trends. In choppy markets, whipsaws occur when the market reverses and does the opposite of what is indicated by past performance. The Index may experience a significant decline in these market conditions. For example, if the Index identifies the U.S. Equity Futures Constituent as being in an upward trend (and the realized volatility of the U.S. Equity Futures Constituent over an observation period of 63 Index Business Days of less than or

equal to 15%), the Selected Portfolio tracked by the Index will be the Equity-Focused Portfolio, which provides more exposure to the U.S. Equity Futures Constituent than any other possible Portfolio. If,

IS-13

after being allocated exposure, the U.S. Equity Futures Constituent suddenly declines significantly, the level of the Index may also decline significantly.

*Mean reversion.* The Trend Signal is particularly likely to be ineffective if the U.S. Equity Futures Constituent exhibits mean reversion tendencies. Mean reversion is the theory that asset prices tend to fluctuate around, and revert to, a particular level (the “mean”) over time. If the U.S. Equity Futures Constituent exhibits a high degree of mean reversion, its level may increase for a sufficient period of time to cause the Trend Signal to identify it as being in an upward trend, but then rapidly fall back toward its long-term mean after the Index allocates exposure to it, leading to declines in the level of the Selected Portfolio and therefore declines in the level of the Index.

#### *Limitations of the Volatility Signal*

The Volatility Signal is based on the assumption that the volatility of the U.S. Equity Futures Constituent over an observation period of 63 Index Business Days may be an indicator of future volatility of the U.S. Equity Futures Constituent. Based on this assumption, on a Selection Date, the Index will determine to allocate the most exposure to the U.S. Equity Futures Constituent when the Volatility Signal is less than 15% (and an upward Trend Signal). There is no guarantee that this assumption will be the case, however. The Volatility Signal is subject to significant limitations, including the following:

*Time lag.* The Volatility Signal measures volatility over the last three months and therefore suffers from a time lag, which may cause it to be late both in signaling an allocation to the U.S. Equity Futures Constituent and in signaling an allocation away from the U.S. Equity Futures Constituent. The Index determines the volatility of the U.S. Equity Futures Constituent over an observation period of 63 Index Business Days. If the volatility of the U.S. Equity Futures Constituent changes, it may be a significant period of time before the Volatility Signal reflects the change. As a result of this time lag, the Volatility Signal may signal an allocation to the U.S. Equity Futures Constituent long after the U.S. Equity Futures Constituent has become increasingly volatile, which can result in a significant decline in the level of the Index over a significant period of time. Alternatively, the Volatility Signal may not identify the volatility of the U.S. Equity Futures Constituent as being low until long after volatility decreased. By the time the Volatility Signal finally signals an allocation to the U.S. Equity Futures Constituent, the volatility may have increased again. This may result in poor Index performance.

*Historical measure.* The 63-Day Realized Volatility is a historical measure of volatility and does not reflect volatility going forward. Realized volatility is not the same as implied volatility, which is an estimation of future volatility and may better reflect market expectations.

***The Performance of Each Constituent is Expected to be Reduced by an Implicit Financing Cost and any Increase in this Cost Will Adversely Affect the Performance of the Index.*** Each Constituent is a futures-based index. As a futures-based index, each Constituent is expected to reflect not only the performance of its corresponding Reference Asset (the S&P 500® Index in the case of the U.S. Equity Futures Constituent and 10-year U.S. Treasury notes in the case of the U.S. Treasury Futures Constituent), but also the implicit cost of a financed position in that Reference Asset. The cost of this financed position will adversely affect the level of each Constituent and, therefore, the Index. Any increase in market interest rates will be expected to further increase this implicit financing cost and will increase



the negative effect on the performance of the Constituents and, therefore, the performance of the Index. Because of this implicit financing cost, the U.S. Equity Futures Constituent will underperform the total return performance of the S&P 500® Index and the U.S. Treasury Futures Constituent will underperform a direct investment in 10-Year U.S. Treasury Notes.

***The Index Rules Limit the Exposure the Index may have to the U.S. Equity Futures Constituent, and, as a Result, the Index is Likely to Significantly Underperform Equities in Rising Equity Markets.*** In no event will the weight of the U.S. Equity Futures Constituent exceed 66.66%, and in two of the three possible Portfolios, the weight of the U.S. Equity Futures Constituent will only be either 33.33% or 0%. In addition, the Index uses 15% as a threshold for elevated volatility, which is not unusually elevated from a historical perspective and may result in reduced or eliminated exposure to the U.S. Equity Futures Constituent at a time when equity markets are in fact relatively stable and rising. Furthermore, even at a time when the Selected Portfolio is the Equity-Focused Portfolio, the Index's volatility-targeting feature may result in significantly reduced Index exposure to the Selected Portfolio (and, in turn, to the U.S. Equity Futures Constituent) because the Equity-Focused Portfolio is likely to have a

IS-14

realized volatility significantly exceeding 5%. As a result, the Index is likely to significantly underperform the U.S. Equity Futures Constituent in rising equity markets.

***The Index's Allocation Methodology May Not Be Successful if the U.S. Equity Futures Constituent and the U.S. Treasury Futures Constituent Decline at the Same Time.*** The Index's allocation methodology is premised on the U.S. Equity Futures Constituent and the U.S. Treasury Futures Constituent being either uncorrelated or inversely correlated. The thesis underlying the Index's allocation methodology is that, if the Index determines that the U.S. Equity Futures Constituent is likely to decline, the Index may avoid losses and even potentially generate positive returns by allocating exposure to the U.S. Treasury Futures Constituent instead of the U.S. Equity Futures Constituent. If, however, the U.S. Treasury Futures Constituent also declines, then the Index will decline regardless of whether its exposure is allocated to the U.S. Equity Futures Constituent or the U.S. Treasury Futures Constituent. If the U.S. Equity Futures Constituent and the U.S. Treasury Futures Constituent tend to decline at the same time—in other words, if they prove to be positively correlated—the Index's allocation methodology will not be successful, and the Index may experience significant declines.

***The Index will Have Significant Exposure to the U.S. Treasury Futures Constituent, which Has Limited Return Potential and Significant Downside Potential, Particularly in Times of Rising Interest Rates.*** The U.S. Treasury Futures Constituent will be included in all three of the possible Portfolios, and in two of the three possible Portfolios it will be either 66.66% or 100% of the weight of that Portfolio. Accordingly, the Index will always be significantly allocated, and will frequently be predominantly or even 100% allocated, to the U.S. Treasury Futures Constituent. U.S. Treasury notes are generally viewed as low risk, low reward assets. Accordingly, the U.S. Treasury Futures Constituent offers only limited return potential, which in turn limits the return potential of the Index. Although U.S. Treasury notes themselves are generally viewed as safe assets, the U.S. Treasury Futures Constituent tracks the value of a futures contract on 10-Year U.S. Treasury Notes, which may be subject to significant fluctuations and declines. In particular, the value of a futures contract on 10-Year U.S. Treasury Notes is likely to decline if there is a general rise in interest rates. A general rise in interest rates is likely to lead to particularly large losses on the U.S. Treasury Futures Constituent because, in addition to reducing the value of the underlying U.S. Treasury notes, the rise in interest rates will increase the implicit financing cost discussed above.

***The Index Fee Will Adversely Affect Index Performance.*** An index fee of 0.85% per annum is deducted in the calculation of the Index. The index fee will place a drag on the performance of the Index, offsetting any appreciation of the Selected Portfolio, exacerbating any depreciation of the Selected Portfolio and causing the level of the Index to decline steadily if the value of the Selected Portfolio remains relatively constant. The Index will not participate in any appreciation of the Selected Portfolio unless it is sufficiently great to offset the negative effects of the index fee, and then only to the extent that the favorable performance of the Selected Portfolio is greater than the index fee (and subject to the volatility-targeting feature). As a result of this deduction, the level of the Index may decline even if the Selected Portfolio appreciates.

***The Index May Fail to Maintain Its Volatility Target and May Experience Large Declines as a Result.*** The Index adjusts its exposure to the Selected Portfolio as often as daily in an attempt to maintain a volatility target of 5%. If the volatility of the Selected Portfolio increases, the Index will reduce its exposure to the Selected Portfolio to the extent necessary to maintain a trailing 21-Day Realized Volatility of 5%. However, because this exposure adjustment is backward-looking, based on realized volatility over a prior period of 21 Index Business Days, there may be a time lag

of several weeks before a sudden increase in volatility of the Selected Portfolio is sufficiently reflected in the trailing 21-Day Realized Volatility measure to result in a meaningful reduction in exposure to the Selected Portfolio. In the meantime, the Index may experience significantly more than 5% volatility and, if the increase in volatility is accompanied by a decline in the value of the Selected Portfolio, the Index may incur significant losses.

***The Volatility-Targeting Feature Is Likely to Cause the Index to Significantly Underperform the Selected Portfolio in Rising Equity Markets.*** The performance of the Index will be based on the performance of the Selected Portfolio, *but only* to the extent that the Index has exposure to the Selected Portfolio. The Index will have less than 100% exposure to the Selected Portfolio at any time when the 21-Day Realized Volatility of the Selected Portfolio is greater than the Index's volatility target of 5%. The Index will select the Equity-Focused Portfolio to be the Selected Portfolio during rising equity markets. The volatility of the Equity-Focused Portfolio is likely to be greater than the volatility target of 5% because the Equity-Focused Portfolio has 66.66% exposure to the U.S. Equity Futures Constituent, and based on historical data the volatility of the U.S. Equity Futures Constituent is likely to be

IS-15

significantly greater than 5%. As a result, at any time where the Selected Portfolio is the Equity-Focused Portfolio (if past patterns hold), the Index is likely to have less than 100% exposure to the performance of such Selected Portfolio. An exposure of less than 100% would mean that the Index will participate in only a limited degree of the performance of the Selected Portfolio, and the difference between 100% and that exposure would be hypothetically allocated to cash, on which no interest or other return will accrue. For example, if the realized volatility of the Selected Portfolio was 10% over the look-back period of 21 Index Business Days, then the Index would have 50% exposure to the performance of the Selected Portfolio (the 5% volatility target *divided by* the 10% realized volatility). An exposure of 50% would mean that the Index would participate in only 50% of the performance of the Selected Portfolio. In this example, if the Selected Portfolio were to appreciate by 2%, the Index would only appreciate by 1% (which is 50% of 2%), *minus* the index fee. This limited exposure to the performance of the Selected Portfolio means that the Index is likely to underperform the Selected Portfolio in rising equity markets. The index fee will exacerbate this underperformance.

***A Significant Portion of the Index May Be Hypothetically Allocated to Cash, Which May Dampen Returns.*** At any time when the Index has less than 100% exposure to the Selected Portfolio, a portion of the Index (corresponding to the difference between the exposure to the Selected Portfolio and 100%) will be hypothetically allocated to cash and will not accrue any interest or other return. In the example in the previous risk factor, where the Index has 50% exposure to the Selected Portfolio, the remaining 50% of the Index would be hypothetically allocated to cash. A significant hypothetical allocation to cash will significantly reduce the Index's potential for gains. In addition, the index fee will be deducted from the entire Index, including the portion hypothetically allocated to cash. As a result, after taking into account the deduction of the index fee, any portion of the Index that is hypothetically allocated to cash will experience a net decline at a rate equal to the index fee.

***Because the Notes Provide for Repayment of the Principal Amount at Maturity Regardless of the Performance of the Index, You May Not Receive a Meaningful Incremental Benefit from the Index's Volatility-Targeting Feature Even Though You Will Be Subject to Its Significant Drawbacks.*** One potential benefit of the Index's volatility-targeting feature is that it may reduce the potential for large Index declines in volatile equity markets. However, that reduced potential for large Index declines comes at a price: as discussed above, the volatility-targeting feature is likely to significantly reduce the potential for Index gains in rising equity markets. Because the notes provide for repayment of the principal amount at maturity even if the Index experiences a large decline, any reduced potential for large Index declines resulting from the volatility-targeting feature may not provide a meaningful incremental benefit to an investor in the notes. Investors in the notes will, however, be fully subject to the drawbacks of the volatility-targeting feature, in the form of the reduced participation in rising equity markets and the other risks described in this section. As a result, you should understand that any benefit you receive from the Index's volatility-targeting feature may be outweighed by its drawbacks.

***The Volatility-Targeting Feature May Cause the Index to Perform Poorly in Temporary Market Crashes.*** A temporary market crash is an event in which the volatility of the Selected Portfolio spikes suddenly and the Selected Portfolio declines sharply in value over a short period of time, but the decline is short-lived and the Selected Portfolio soon recovers its losses. In this circumstance, although the value of the Selected Portfolio after the recovery may return to its value before the crash, the level of the Index may not fully recover its losses. This is because of the time lag that results from using a look-back period of 21 Index Business Days as the basis for the Index's volatility-targeting feature. Because of the time lag, the Index may not meaningfully reduce its exposure to the Selected Portfolio until the crash has already occurred, and by the time the reduced exposure does take effect, the recovery may have already begun. For example, if the Index has 50% exposure to the decline in the Selected Portfolio, and then reduces its

exposure so that it has only 20% exposure to the recovery, the Index will end up significantly lower after the crash and recovery than it was before the crash.

***The Performance of the Index Will Be Highly Sensitive to the Specific Parameters by which It Is Calculated.*** The Index is calculated pursuant to a rules-based methodology that contains a number of specific parameters. These parameters will be significant determinants of the performance of the Index. For example, the Index has a volatility target of 5% with a realized volatility look-back period of 21 Index Business Days; the Selected Portfolio can only be one of three possible Portfolios; the Trend Signal is determined based on a linear regression methodology; the Trend Signal will not trigger a rebalancing if the Trend Signal fails to meet a test of statistical significance; and the Volatility Signal is based on a realized volatility look-back period of 63 Index Business Days. There is nothing inherent in any of these specific parameters that necessarily makes them the right specific parameters to use for the Index. If the Index had used different parameters, the Index might have achieved significantly better returns.

IS-16

***The Index Will Be Calculated Pursuant to a Set of Fixed Rules and Will Not Be Actively Managed. If the Index Performs Poorly, the Index Administrator Will Not Change the Rules in an Attempt to Improve Performance.*** The Index tracks the hypothetical performance of the rules-based investment methodology described under “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” below. The Index will not be actively managed. If the rules-based investment methodology tracked by the Index performs poorly, the Index Administrator will not change the rules in an attempt to improve performance. Accordingly, an investment in notes linked to the Index is not like an investment in a mutual fund. Unlike a mutual fund, which could be actively managed by the fund manager in an attempt to maximize returns in changing market conditions, the Index Rules will remain unchanged, even if those rules might prove to be ill-suited to future market conditions.

***The Index Has Limited Actual Performance Information.*** The Index launched on June 13, 2016. Accordingly, the Index has limited actual performance data. Because the Index is of recent origin with limited performance history, an investment linked to the Index may involve a greater risk than an investment linked to one or more indices with an established record of performance. A longer history of actual performance may have provided more reliable information on which to assess the validity of the Index’s hypothetical investment methodology. However, any historical performance of the Index is not an indication of how the Index will perform in the future.

***Hypothetical Back-Tested Index Performance Information Is Subject to Significant Limitations.*** All information regarding the performance of the Index prior to June 13, 2016 is hypothetical and back-tested, as the Index did not exist prior to that time. It is important to understand that hypothetical back-tested Index performance information is subject to significant limitations, in addition to the fact that past performance is never a guarantee of future performance. In particular:

The Index Administrator developed the rules of the Index with the benefit of hindsight—that is, with the benefit of being able to evaluate how the Index Rules would have caused the Index to perform had it existed during the hypothetical back-tested period. The fact that the Index generally appreciated over the hypothetical back-tested period may not therefore be an accurate or reliable indication of any fundamental aspect of the Index methodology.

The hypothetical back-tested performance of the Index might look different if it covered a different historical period. The market conditions that existed during the historical period covered by the hypothetical back-tested Index performance information are not necessarily representative of the market conditions that will exist in the future.

Because the Constituents were not published during the entire period for which the Index Administrator has prepared hypothetical back-tested Index performance information, the hypothetical back-tested Index levels have been calculated by the Index Administrator based in part on hypothetical back-tested levels of the Constituents that were prepared by the index sponsor of the Constituents. The Index Administrator is not aware of the assumptions made by the index sponsor of the Constituents when it calculated the hypothetical back-tested index levels for the Constituents.

It is impossible to predict whether the Index will rise or fall. The actual future performance of the Index may bear no relation to the historical or hypothetical back-tested levels of the Index.

***The Index Administrator, which is our Affiliate, and the Index Calculation Agent May Exercise Judgments under Certain Circumstances in the Calculation of the Index.*** Although the Index is rules-based, there are certain circumstances under which the Index Administrator or Index Calculation Agent may be required to exercise judgment in calculating the Index, including the following:

The Index Administrator will determine whether an ambiguity, error or omission has arisen and the Index Administrator may resolve such ambiguity, error or omission, acting in good faith and in a commercially reasonable manner, and may amend the Index Rules to reflect the resolution of the ambiguity, error or omission in a manner that is consistent with the commercial objective of the Index.

The Index Calculation Agent's calculations, determinations, rebalancings and adjustments in respect of the Index are subject to review by the Index Administrator, and, in the event of any conflict, the Index Administrator's determinations will control.

IS-17

The Index Calculation Agent will determine if any Index Business Day is a Disrupted Day with respect to any Constituent and, if the disruption is continuing on the fifth succeeding Scheduled Trading Day after such scheduled Index Business Day in respect of such Constituent, the Index Calculation Agent will determine the closing level of that Constituent on that day in its good faith discretion.

If an Adjustment Event occurs with respect to a Constituent, the Index Calculation Agent will determine whether to replace such Constituent and the Index Administrator will determine whether to discontinue the Index.

The Index Calculation Agent will determine whether a Regulatory Event occurs and whether such event has a material effect on the Index. Following the occurrence of a material Regulatory Event, the Index Administrator will determine whether to amend the Index Rules or discontinue and cancel the Index. Following the occurrence of a nonmaterial Regulatory Event, the Index Calculation Agent will determine whether to replace the affected Constituent.

In exercising these judgments, the Index Administrator's status as our affiliate may cause its interests to be adverse to yours. The Index Administrator and Index Calculation Agent are not your fiduciaries and are not obligated to take your interests into account in calculating the Index. Any actions taken by the Index Administrator or Index Calculation Agent in calculating the level of the Index could adversely affect the performance of the Index.

***Investors in the Notes Will Not Have Any Ownership or Other Interest in the Futures Contracts Underlying the Constituents.*** The Selected Portfolio is described as a hypothetical investment portfolio because there is no actual portfolio of assets to which any investor is entitled or in which any investor has any ownership or other interest. The Index is merely a mathematical calculation that is performed by reference to hypothetical positions in the Constituents included in the Selected Portfolio, and the other Index Rules, and each Constituent is merely a mathematical calculation that is performed by reference to hypothetical positions in the futures contracts included in such Constituent.



## DESCRIPTION OF THE NOTES

The following description of the general terms of the Notes supplements the general terms and provisions set forth in the accompanying prospectus supplement and prospectus. If any specific information regarding the Notes in this index supplement is inconsistent with the more general terms described in the accompanying prospectus supplement and prospectus, you should rely on the information in this index supplement.

The pricing supplement applicable to a particular issuance of Notes will contain the specific terms of those Notes. If any information in the applicable pricing supplement is inconsistent with this index supplement, you should rely on the information in the applicable pricing supplement. The applicable pricing supplement may also add, update or change information contained in this index supplement or in the accompanying prospectus supplement and prospectus. It is important for you to consider carefully the information contained in this index supplement together with the information contained in the applicable pricing supplement and the accompanying prospectus supplement and prospectus before investing in the Notes.

### General

The notes offered under this index supplement (the “Notes”) are senior unsecured debt securities issued by Citigroup Global Markets Holdings Inc. under the senior debt indenture described in the accompanying prospectus supplement and prospectus. Any payments due on the Notes are fully and unconditionally guaranteed by Citigroup Inc. The Notes will constitute part of the senior debt of Citigroup Global Markets Holdings Inc. and will rank equally with all other unsecured and unsubordinated debt of Citigroup Global Markets Holdings Inc. The guarantee of payments due on the Notes will constitute part of the senior debt of Citigroup Inc. and will rank equally with all other unsecured and unsubordinated debt of Citigroup Inc.

The particular payment terms of the Notes will be set forth in the applicable pricing supplement and will be linked to the performance of the Citi Dynamic Asset Selector 5 Excess Return Index (the “Index”). The Index is described in “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” below.

The Notes provide for the repayment of the stated principal amount at maturity. If so specified in the applicable pricing supplement, the Notes offer the possibility of an additional payment at maturity (other than any coupon payment, if specified in the applicable pricing supplement) based on the performance of the Index. The stated principal amount of each Note will be specified in the applicable pricing supplement.

**In addition to the risks associated with the performance of the Index, all payments due on the Notes are subject to the credit risk of Citigroup Global Markets Holdings Inc. and Citigroup Inc., as guarantor of any payments due on the Notes. If Citigroup Global Markets Holdings Inc. and Citigroup Inc. default on their obligations**

**under the Notes, you may not receive any payment owed to you, including the repayment of the stated principal amount of your Notes at maturity.**

Any potential payment on the Notes that depends on the performance of the Index will be based on the Closing Level of the Index on one or more dates specified in the applicable pricing supplement (each, a "Valuation Date"), subject to the specific terms set forth in the applicable pricing supplement. If any scheduled Valuation Date is not an Index Business Day, such Valuation Date will be postponed to the next succeeding Index Business Day.

An "Index Business Day" is each day (1) on which commercial banks and foreign exchange markets are scheduled to be open for general business (including dealings in foreign exchange and foreign exchange currency deposits) in New York City; and (2) which is also a Scheduled Trading Day for each of the Constituents.

The term "Scheduled Trading Day" has, in respect of each Constituent, the meaning specified under "Description of the Citi Dynamic Asset Selector 5 Excess Return Index" below.

The term "Constituent" has the meaning specified under "Description of the Citi Dynamic Asset Selector 5 Excess Return Index" below.

## **Maturity**

The notes will mature on the date specified in the applicable pricing supplement (the "Maturity Date"). If the Maturity Date falls on a day that is not a New York Business Day, the payment to be made on the Maturity Date will

be made on the next succeeding New York Business Day with the same force and effect as if made on the Maturity Date, and no interest will accrue as a result of such delayed payment. If a Notes Disruption Event occurs on the Valuation Date (or if there is more than one Valuation Date, on the final Valuation Date), then the Maturity Date will be postponed to the third New York Business Day after the Final Determination Date with respect to such Valuation Date. In addition, if the originally scheduled Valuation Date (or if there is more than one Valuation Date, the originally scheduled final Valuation Date) is not an Index Business Day and such Valuation Date is postponed so that it falls fewer than three New York Business Days prior to the Maturity Date, the Maturity Date will be postponed to the third New York Business Day after such Valuation Date as postponed.

“New York Business Day” means any day that is not a Saturday, a Sunday or a day on which the securities exchanges, bank institutions or trust companies in the City of New York are authorized or obligated by law or executive order to close.

### **Notes Calculation Agent**

The “Notes Calculation Agent” for each issuance of Notes will be our affiliate, Citigroup Global Markets Inc. (“CGMI”), or any successor appointed by us, unless otherwise specified in the applicable pricing supplement. The Notes Calculation Agent will make the determinations specified in this index supplement or in the applicable pricing supplement. All determinations made by the Notes Calculation Agent will be at the sole discretion of the Notes Calculation Agent and will, in the absence of manifest error, be conclusive for all purposes and binding on Citigroup Global Markets Holdings Inc., Citigroup Inc. and the holders of the Notes. The Notes Calculation Agent is obligated to carry out its duties and functions in good faith and using its reasonable judgment.

### **Determining the Closing Level of the Index**

The “Closing Level” of the Index means, on any date of determination, the Index Level (as defined under “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” below) for such day as published by the Index Calculation Agent, subject to the terms described under “—Discontinuance of the Index” below. If the Index Level is not published by the Index Calculation Agent for any date of determination, or if the Notes Calculation Agent determines that a Market Disruption Event exists with respect to any Constituent on any date of determination, the Notes Calculation Agent will calculate the Closing Level of the Index in respect of that date of determination in good faith in accordance with the formula for and method of calculating the Index last in effect prior to commencement of the Market Disruption Event or failure to publish, using:

(i) for any Constituent with respect to which a Market Disruption Event does not occur on that date of determination, the Constituent Closing Level of such Constituent on that date of determination; and

(ii) for each Constituent with respect to which a Market Disruption Event occurs or is continuing on that date of determination, the Constituent Closing Level of such Constituent on the immediately succeeding Scheduled Trading Day for such Constituent on which no Market Disruption Event occurs or is continuing with respect to such Constituent, unless such Scheduled Trading Day has not occurred by the fifth Scheduled Trading Day for such Constituent following that date of determination (the “Backstop Date”), in which case the Notes Calculation Agent will use an alternative Constituent Closing Level for such Constituent determined using its good faith estimate of the Constituent Closing Level of that Constituent as of such Backstop Date.

For any date of determination on which the Index Level is not published or a Market Disruption Event exists, the Notes Calculation Agent will, following that date of determination, calculate the Closing Level in respect of that date, and the Notes Calculation Agent will reflect in such Closing Level the index fee described under “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” to the date of such calculation. If the Notes Calculation Agent determines that a Market Disruption Event exists with respect to any Constituent on a Valuation Date (such event, a “Notes Disruption Event”), the date on which the Closing Level of the Index in respect of such Valuation Date is finally determined (*i.e.*, the first date on which the Constituent Closing Level has been determined for all Constituents in respect of such Valuation Date) is referred to as the “Final Determination Date” for such Valuation Date.

The term “Constituent Closing Level” has, in respect of each Constituent, the meaning specified under “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” below, except as otherwise provided in the definition of “Closing Level” above.

The term “Market Disruption Event” means, in respect of each Constituent, any event that would result in a Disrupted Day with respect to that Constituent, as described under “Description of the Citi Dynamic Asset Selector 5 Excess Return Index” below.

### **Discontinuance of the Index**

If the Index Administrator discontinues publication of the Index, and it or another entity (including CGMI) publishes a successor or substitute index that the Notes Calculation Agent determines, in its sole discretion, to be comparable to the discontinued Index, then the Closing Level of the Index thereafter will be determined by reference to the level of that index, which we refer to as a “Successor Index.” In such an event, the Notes Calculation Agent will, in its sole discretion, make any adjustment to any level of the Index or the Successor Index used for purposes of the Notes as it may deem appropriate in order to account for the effect of the substitution.

If the Index Administrator discontinues publication of the Index prior to, and such discontinuance is continuing on, a Valuation Date and the Notes Calculation Agent determines, in its sole discretion, that no Successor Index is available at such time, then the Notes Calculation Agent will determine a substitute Closing Level for the Index for such date. Such Closing Level will be determined by the Notes Calculation Agent in accordance with the formula for calculating the Index last in effect prior to such discontinuance, using only the Constituent(s) included in the Index (or the Constituent(s) that would have been included the Index but for the event that resulted in such discontinuance of the Index) immediately prior to such discontinuance, without any rebalancing or substitution of such Constituents after such discontinuance. In such an event, the Closing Level of the Index so determined will cease to reflect the Index’s portfolio selection and rebalancing methodology and instead will track the performance of a fixed portfolio of notional assets, which will consist of the Selected Portfolio tracked by the Index (or the Selected Portfolio that would have been tracked the Index but for the event that resulted in such discontinuance of the Index) immediately prior to such discontinuance. For purposes of clarity, if the Index Administrator discontinues publication of the Index and the Notes Calculation Agent is required to calculate a substitute Closing Level for the Index, the Notes Calculation Agent will make that calculation applying all of the current features of the Index, including the volatility targeting and the index fee, with the exception that the Selected Portfolio will no longer be re-selected even if there is a Change in Market Regime.

If the discontinuance of the Index was the result of a material modification or permanent cancellation of a Constituent, and such modification or cancellation is continuing on a Valuation Date, or if a Constituent is otherwise unavailable on a Valuation Date, then the Notes Calculation Agent will determine the Constituent Closing Level for such Constituent with respect to any date for which a Constituent Closing Level of such Constituent may be required using its good faith estimate of the closing level of that Constituent on each such date. Notwithstanding these alternative arrangements, discontinuance of the publication of the Index may adversely affect the value of the Notes.

### **Coupon**

The Notes will not pay a coupon unless the applicable pricing supplement specifically provides otherwise. If the applicable pricing supplement specifies that the Notes will pay a coupon, the Notes will pay a coupon at the per annum rate specified in the applicable pricing supplement, which may be a fixed rate or may be determined by reference to the performance of the Index or otherwise. If the applicable pricing supplement provides that the Notes will pay a coupon, holders of the Notes will receive the applicable coupon payment on the coupon payment dates specified in the applicable pricing supplement (each, a "Coupon Payment Date"). If the per annum rate varies over the term of the Notes based on the performance of the Index or otherwise, the per annum rate for each Coupon Payment Date will be determined in the manner and on the Valuation Date specified in the applicable pricing supplement. Unless otherwise specified in the applicable pricing supplement, each coupon payment will be computed on the basis of a 360-day year of twelve 30-day months or, in the case of an incomplete month, the number of days elapsed. Unless otherwise specified in the applicable pricing supplement, the coupon payable on the first Coupon Payment Date for an issuance of Notes will accrue from and including the issue date of such Notes to but excluding such first Coupon Payment Date, and the coupon payable on each succeeding Coupon Payment Date for an issuance of Notes will accrue from and including the immediately preceding Coupon Payment Date to but excluding such succeeding Coupon Payment Date.

Unless otherwise specified in the applicable pricing supplement, each coupon payment will be payable to the persons in whose names the Notes are registered at the close of business on the New York Business Day immediately preceding the applicable Coupon Payment Date (each a "Regular Record Date"), except that the final

IS-21

coupon payment will be payable to the persons who receive the payment at maturity. If any Coupon Payment Date is not a New York Business Day, the coupon payment to be made on that Coupon Payment Date will be made on the next succeeding New York Business Day with the same force and effect as if made on that Coupon Payment Date, and no interest will accrue as a result of delayed payment. If any coupon payment on the Notes depends on the Closing Level of the Index on a Valuation Date and such Valuation Date is postponed as provided under “—Determining the Closing Level of the Index” and the relevant Coupon Payment Date is specified as a fixed date, such coupon payment will be made on the later of (i) the third New York Business Day after such Valuation Date (or the last such Valuation Date, if two or more consecutive Scheduled Trading Days are each scheduled Valuation Dates), as postponed and (ii) the Coupon Payment Date.

### **Automatic Call**

If specified in the applicable pricing supplement, an automatic call feature will apply to the Notes in the circumstances and on the date(s) specified in the applicable pricing supplement. If an automatic call is triggered, the Notes will be redeemed for a cash payment that will be determined as set forth in the applicable pricing supplement. The minimum amount of such cash payment will be equal to the stated principal amount per Note. The Notes will not be subject to an automatic call feature unless the applicable pricing supplement so provides.

### **Call Right**

If specified in the applicable pricing supplement, we will have the right to call the Notes, in whole or in part, on terms specified in the applicable pricing supplement. If applicable, the pricing supplement will specify the dates on which we may call the Notes, the price at which we may call the Notes, the circumstances in which we may call the Notes and the payment to be made upon redemption. If any date on which we elect to redeem the Notes falls on a day that is not a New York Business Day, the payment to be made upon redemption will be made on the next succeeding New York Business Day with the same force and effect as if made on the original date of redemption, and no interest will accrue as a result of delayed payment. We will not have the right to call the Notes unless the applicable pricing supplement so provides.

If we have the right to call the Notes, the provisions set forth under “Description of the Notes—Optional Redemption, Repayment and Repurchase” in the accompanying prospectus supplement will apply, subject to the terms set forth in the applicable pricing supplement.

Holders of the Notes will not have the right to require us to redeem the Notes prior to maturity, unless otherwise specified in the applicable pricing supplement.

### **No Redemption at the Option of the Holder; Defeasance**

The Notes will not be subject to redemption at the option of any holder prior to maturity and will not be subject to the defeasance provisions described in the accompanying prospectus under “Description of Debt Securities—Defeasance.”

### **Events of Default and Acceleration**

In case an event of default (as described in the accompanying prospectus) with respect to any issuance of Notes shall have occurred and be continuing, the amount declared due and payable upon any acceleration of the Notes will be determined by the Calculation Agent and will equal, for each Note, the amount to be received on the Maturity Date, calculated using the Closing Level of the Index as though the date of acceleration were the Valuation Date (or the final Valuation Date if there is more than one Valuation Date). For purposes of the immediately preceding sentence, if the applicable pricing supplement specifies that the Notes will pay a coupon, your final coupon payment will reflect the portion of the coupon that has accrued (or will be prorated) from and including the immediately preceding Coupon Payment Date on which a coupon payment was made (if required) (or the issue date, if there is no such Coupon Payment Date) to but excluding the date of acceleration.

In case of default under the Notes, whether in the payment of a coupon or any other payment due under the Notes, no interest will accrue on such overdue payment either before or after the Maturity Date.

IS-22



**Paying Agent, Trustee and CUSIP**

Citibank, N.A. will serve as paying agent and registrar for the Notes and will also hold the global notes representing each issuance of Notes as custodian for DTC. The Bank of New York Mellon will serve as trustee for the Notes.

The CUSIP number for each issuance of Notes will be set forth in the applicable pricing supplement.

IS-23

**DESCRIPTION OF THE CITI DYNAMIC ASSET SELECTOR 5 EXCESS RETURN INDEX**

## Overview

The Citi Dynamic Asset Selector 5 Excess Return Index (the “Index”) was developed by Citigroup Global Markets Limited (the “Index Administrator”). The description of the Index included in this section is based on rules formulated by the Index Administrator (the “Index Rules”), which are attached as an annex to this Index Supplement. The Index launched on June 13, 2016 and, therefore, has a limited performance history.

The Index tracks the performance of the hypothetical, rules-based investment methodology described in this section. On each Index Business Day, the Index seeks to identify types of U.S. equity market conditions, which we refer to as “Market Regimes,” using trend and volatility signals. According to the identified Market Regime, Index exposure is allocated to one of three possible hypothetical investment portfolios, each consisting of varying degrees of exposure to a U.S. equity futures index and a U.S. treasury futures index. Once a hypothetical investment portfolio has been selected, the Index will continue to have exposure to that portfolio until the signals indicate that there has been a change in the Market Regime, at which point the Index exposure will be allocated to a different hypothetical investment portfolio. The degree of Index exposure to the current selected portfolio is subject to adjustment daily in an attempt to maintain an Index annualized volatility of 5%, which we refer to as the Index’s “volatility targeting” feature. In general, over any given period of time, the level of the Index will decrease if the selected hypothetical investment portfolio depreciates and increase if the selected portfolio appreciates, in each case subject to the index fee, volatility targeting and other features of the Index described in more detail below.

The Index allocates exposure to one of the Equity-Focused Portfolio, the Treasury Portfolio or the Intermediate Portfolio described below (each, a “Portfolio”) depending on the Trend Signal and Volatility Signal described below (each, a “Signal”). Each Portfolio will provide a varying degree of exposure to only the following two indices (each, a “Constituent”):

Table I – Constituents

<b>Asset Class</b>	<b>Constituent</b>	<b>Ticker</b>	<b>Underlying Futures Contract</b>	<b>Reference Asset</b>	<b>Market Sector</b>
<b>Equity futures</b>	S&P 500 Futures Excess Return Index (the “ <b>U.S. Equity Futures Constituent</b> ”)	SPXFP<Index>	E-mini S&P 500 futures	S&P 500® Index	U.S. large-cap equities
<b>Fixed income futures</b>	S&P 10-Year U.S. Treasury Note Futures Excess Return Index (the “ <b>U.S. Treasury Futures Constituent</b> ”)	US10YF<Index>	10-Year U.S. Treasury Note Futures	10-Year U.S. Treasury Notes	U.S. 10-year treasuries

The U.S. Equity Futures Constituent tracks the performance of a hypothetical investment, rolled quarterly, in the nearest maturity E-mini S&P 500 futures contract, which provides exposure to U.S. large-cap equities. The U.S. Treasury Futures Constituent tracks the performance of a hypothetical investment, rolled quarterly, in the nearest maturity 10-Year U.S. Treasury Note futures contract, which provides exposure to U.S. Treasury notes with a remaining maturity of at least 6.5 years and an original maturity not exceeding 10 years. We refer to any U.S. Treasury notes with a remaining maturity of at least 6.5 years and an original maturity not exceeding 10 years as “10-Year U.S. Treasury Notes”, but it is important to note that the remaining maturity of the U.S. Treasury notes underlying the 10-Year U.S. Treasury Note futures contract may be as short as 6.5 years. The price and yield performance of a U.S. Treasury note with a 6.5-year remaining maturity may differ significantly from that of a U.S. Treasury note with a 10-year remaining maturity. For example, an increase in market interest rates is expected to affect the performance of U.S. Treasury notes with a remaining maturity of 6.5 years differently than the

IS-24

performance of U.S. Treasury notes with a remaining maturity of 10 years. As a result, the performance of the U.S. Treasury Futures Constituent may be significantly different than it would be if it were instead based solely on the “on-the-run” 10-Year U.S. Treasury note (i.e., the most recently issued U.S. Treasury note with an original maturity of 10 years).

Each Constituent is a futures-based index. As a futures-based index, each Constituent is expected to reflect not only the performance of the corresponding Reference Asset underlying the relevant futures contract (as indicated in Table I above), but also the implicit cost of a financed position in that Reference Asset. This is because it is generally expected that market participants will take this cost into account in buying and selling the futures contracts tracked by the Constituents, causing the prices of these futures contracts to reflect this cost. This implicit financing cost will adversely affect the level of each Constituent and, therefore, the Index. Any increase in market interest rates will be expected to increase this implicit financing cost and will adversely affect the performance of the Constituents and, therefore, the performance of the Index. Because of this implicit financing cost, the U.S. Equity Futures Constituent will underperform the total return performance of the S&P 500<sup>®</sup> Index and the U.S. Treasury Futures Constituent will underperform a direct investment in 10-Year U.S. Treasury Notes.

The three possible Portfolios that may be constructed from the Constituents are as follows:

**Table II – Portfolios**

<b>Portfolio</b>	<b>% Weight of Constituent</b>
	U.S. Equity Futures Constituent: 66.66%
<b>Equity-Focused Portfolio</b>	
	U.S. Treasury Futures Constituent: 33.33%
	U.S. Equity Futures Constituent: 33.33%
<b>Intermediate Portfolio</b>	
	U.S. Treasury Futures Constituent: 66.66%
	U.S. Equity Futures Constituent: 0.00%
<b>Treasury Portfolio</b>	
	U.S. Treasury Futures Constituent: 100.00%

The Index relies on the Signals to determine which Market Regime is currently in effect and, in turn, which Portfolio to select. On each Index Business Day (as defined below), the Index calculates:

• The trend of the performance of the U.S. Equity Futures Constituent, measured by the linear regression methodology described below, over an observation period of 21 Index Business Days (the “Trend Signal”); and

• The realized volatility of the U.S. Equity Futures Constituent over an observation period of 63 Index Business Days (the “Volatility Signal”).

The Portfolio selected by the Index during any given period is referred to as the “Selected Portfolio” for that period. Table III below indicates the Market Regime that will be identified for each possible combination of the Signals and, for each Market Regime, the corresponding Portfolio that will be selected as the Selected Portfolio.

IS-25

Table III – Signals, Market Regimes and Corresponding Selected Portfolios

<b>Signals</b>	<b>Market Regime</b>	<b>Selected Portfolio</b>
<b>Upward</b> Trend Signal and Volatility Signal <b>less than or equal to 15%</b>	<b>Stable-Trending Up</b>	<b>Equity-Focused Portfolio</b>
<b>Upward</b> Trend Signal and Volatility Signal <b>greater than 15%</b>	<b>Unstable-Trending Up</b>	<b>Intermediate Portfolio</b>
<b>Downward</b> Trend Signal and Volatility Signal <b>less than or equal to 15%</b>	<b>Stable-Trending Down</b>	<b>Intermediate Portfolio</b>
<b>Downward</b> Trend Signal and Volatility Signal <b>greater than 15%</b>	<b>Unstable-Trending Down</b>	<b>Treasury Portfolio</b>

The Selected Portfolio tracked by the Index will not change until the Signals indicate that another Portfolio should be selected, which we refer to as a “Change in Market Regime”. However, if the Trend Signal fails to meet a test of statistical significance, as further described below, then a Change in Market Regime will not occur and the Selected Portfolio will not change even if the Signals would otherwise call for a change.

Over any time period when the Index has exposure to a given Selected Portfolio, the performance of the Index will reflect the performance of that Selected Portfolio over that time period, but only to the extent that the Index has exposure to the Selected Portfolio. The Index adjusts its exposure to the Selected Portfolio as often as daily in an attempt to maintain a volatility target of 5%, subject to a maximum exposure of 100% and a minimum exposure of 0%. The Index’s exposure to the Selected Portfolio at any time will be equal to the volatility target of 5% *divided by* the realized volatility of the current Selected Portfolio over a look-back period of 21 Index Business Days (subject to the volatility buffer described below). If the realized volatility of the current Selected Portfolio was greater than 5%, the Index will have less than 100% exposure to the Selected Portfolio. The difference between 100% and the exposure that the Index has to the Selected Portfolio will be hypothetically allocated to cash and will accrue no interest or other return. If the realized volatility of the Selected Portfolio was less than or equal to 5%, the Index will have 100% exposure to the Selected Portfolio.

The performance of the Index will be reduced by an index fee of 0.85% per annum.

The Index methodology is subject to important risks. These risks are described in the section “Risk Factors Relating to the Index” in this Index Supplement. A few of the key risk are briefly summarized below:

The Index is a trend-following index and is subject to the limitations inherent in all trend-following methodologies, including the fact that past performance is no guarantee of future performance. Furthermore, the Index’s trend-following methodology may be unsuccessful even if past trends do prove to be indicative of future performance because the Trend Signal may not accurately capture the trend. See “—Signals—The Trend Signal” below.

As a futures-based index, each Constituent is expected to reflect an implicit cost of a financed position in its respective Reference Asset. The cost of this financed position will adversely affect the level of each Constituent and, therefore, the performance of the Index. Any increase in market interest rates will be expected to increase this implicit financing cost and will further adversely affect the performance of the Constituents and, therefore, the performance of the Index.

IS-26

The Index rules limit the exposure the Index may have to the U.S. Equity Futures Constituent and, as a result, the Index is likely to significantly underperform equities in rising equity markets. In no event will the weight of the U.S. Equity Futures Constituent exceed 66.66%, and in two of the three possible Portfolios, the weight of the U.S. Equity Futures Constituent will only be either 33.33% or 0%. In addition, the Index uses 15% as a threshold for elevated volatility, which is not unusually elevated from a historical perspective and may result in reduced or eliminated exposure to the U.S. Equity Futures Constituent at a time when equity markets are in fact relatively stable and rising. Furthermore, even at a time when the Selected Portfolio is the Equity-Focused Portfolio, the Index's volatility-targeting feature may result in significantly reduced Index exposure to the Selected Portfolio (and, in turn, to the U.S. Equity Futures Constituent) because the Equity-Focused Portfolio is likely to have a realized volatility significantly exceeding 5%. As a result, the Index is likely to significantly underperform the U.S. Equity Futures Constituent in rising equity markets.

The Index will have significant exposure to the U.S. Treasury Futures Constituent, which has limited return potential and significant downside potential, particularly in times of rising interest rates. The U.S. Treasury Futures Constituent will be included in all three of the possible Portfolios, and in two of the three possible Portfolios it will be either 66.66% or 100% of the weight of that Portfolio. Accordingly, the Index will always be significantly allocated, and will frequently be predominantly or even 100% allocated, to the U.S. Treasury Futures Constituent. U.S. Treasury notes are generally viewed as low risk, low reward assets. Accordingly, the U.S. Treasury Futures Constituent offers only limited return potential, which in turn limits the return potential of the Index. Although U.S. Treasury notes themselves are generally viewed as safe assets, the U.S. Treasury Futures Constituent tracks the value of a futures contract on 10-Year U.S. Treasury notes, which may be subject to significant fluctuations and declines. In particular, the value of a futures contract on 10-Year U.S. Treasury notes is likely to decline if there is a general rise in interest rates. A general rise in interest rates is likely to lead to particularly large losses on the U.S. Treasury Futures Constituent because, in addition to reducing the value of the underlying U.S. Treasury notes, the rise in interest rates will increase the implicit financing cost discussed above.

The Index may fail to maintain its volatility target and, as a result, may experience large declines. Through the volatility-targeting feature, the Index may reduce the potential for large Index declines in a volatile market by reducing its exposure to the Selected Portfolio as the realized volatility of the Selected Portfolio rises. However, because this exposure adjustment is backward-looking, based on realized volatility over a look-back period of 21 Index Business Days, there may be a time lag of several weeks before a sudden increase in volatility is sufficiently reflected in the realized volatility measure to result in a meaningful reduction in exposure to the Selected Portfolio. In the meantime, the Index may have significantly more than 5% volatility and may incur significant losses.

Although the volatility-targeting feature may reduce the potential for large Index declines (subject to the time lag described in the previous bullet), it may also significantly reduce the potential for Index gains. An exposure to the performance of the Selected Portfolio of less than 100% would mean that the Index will participate in only a limited degree of the performance of the Selected Portfolio, and the difference between 100% and that exposure will be hypothetically allocated to cash. For example, if the 21-Day Realized Volatility of the Selected Portfolio is 10%, then the Index would have 50% exposure to the performance of the Selected Portfolio (the volatility target of 5% *divided by* the 21-Day Realized Volatility of 10%). An exposure of 50% would mean that the Index would participate in only 50% of the performance of the Selected Portfolio. In this example, if the Selected Portfolio were to appreciate by 2%, the Index would only appreciate by 1% (which is 50% of 2%), and if the Selected Portfolio were to depreciate by 2%, the Index would only depreciate by 1%, in each case *minus* the index fee. This limited exposure to the performance of the Selected Portfolio means that the Index is likely to underperform the Selected Portfolio in a rising market.



The performance of the Index will be reduced by an index fee. The index fee will place a drag on the performance of the Index, offsetting any appreciation of the Selected Portfolio, exacerbating any depreciation of the Selected Portfolio and causing the level of the Index to decline steadily if the value of the Selected Portfolio remains relatively constant.

IS-27

For more information about these and other risks associated with the Index, you should carefully review the section “Key Risks Relating to the Index” in this Index Supplement.

The Selected Portfolio is a hypothetical investment portfolio. There is no actual portfolio of assets to which any investor is entitled or in which any investor has any ownership or other interest. The Index is merely a mathematical calculation that is performed by reference to hypothetical positions in the Constituents and the other Index Rules, as described in this section.

The Index Rules, which are attached as Annex A to this Index Supplement, set forth the specific rules governing the Index. When this description of the Index refers to the “Selected Portfolio,” it is referring to the term “Core Index” in the Index Rules. This description of the Index is only a summary of the Index Rules. You should understand that this summary does not describe the mathematical terms used in calculating the Index, and as a result is more general than the precise mathematical formulations used to calculate the Index. The mathematical calculation of the Index is described in the Index Rules. The Index will be governed by and calculated in accordance with the mathematical and other terms set forth in the Index Rules, and not this description of the Index. If this description of the Index conflicts with the Index Rules, the Index Rules control.

## Signals

On each Index Business Day, the Index will determine whether there is a Change in Market Regime, and if so, the Index will select on that Index Business Day (the “Selection Date”) the Selected Portfolio, effective on the Index Business Day immediately subsequent to the applicable Selection Date (the “Rebalancing Date”) until the next Rebalancing Date. If there is no Change in Market Regime by comparison with the immediately preceding Index Business Day, then no Selection Date arises and there is no rebalancing of the Index. The Index will determine whether a Change in Market Regime occurs based on the Trend Signal and the Volatility Signal, which are described below. The Selected Portfolio selected upon a Change in Market Regime will be (i) the Equity-Focused Portfolio if the Signals indicate an upward Trend Signal and a Volatility Signal of less than or equal to 15%, (ii) the Intermediate Portfolio if there is either (a) an upward Trend Signal and a Volatility Signal greater than 15% or (b) a downward Trend Signal and a Volatility Signal less than or equal to 15% or (iii) the Treasury Portfolio if the Signals indicate a downward Trend Signal and a Volatility Signal greater than 15%.

## The Trend Signal

On each Index Business Day, the trend of the U.S. Equity Futures Constituent (the “Trend Signal”) will be determined based on a linear regression of the levels of the U.S. Equity Futures Constituent over a look-back period (the “Trend Measurement Period”) of 21 Index Business Days, as discussed below.

A linear regression is a statistical method used to calculate the straight line that “best fits” a given set of data points (graphically, this is expressed as the straight line that minimizes the sum of vertical distances between each data point and the line). In the case of the Index, the relevant data points are the levels of the U.S. Equity Futures Constituent (plotted on the y-axis, and expressed logarithmically) on each of the Index Business Days in the Trend Measurement Period (plotted on the x-axis). The Index uses the slope of the straight line that results from a linear regression of these data points (called the “line of best fit”) as an indication of the trend in the level of the U.S. Equity Futures Constituent over the Trend Measurement Period. If that line slopes upward, the Index interprets that as an indicator of an upward trend, and if that line slopes downward, the Index interprets that as an indication of a downward trend.

The following graph illustrates a hypothetical line of best fit that indicates an upward trend. This graph (and the graphs that follow it) has been simplified and does not reflect the precise manner in which the Index calculates the line of best fit (among other differences, the Index uses the natural logarithm of levels of the U.S. Equity Futures Constituent and not actual levels).

IS-28

Although a linear regression generates the line that best fits a given set of data, the “best fit” is not necessarily a “good fit.” In other words, a linear regression line and its slope may be calculated even if the data points are dispersed and do not necessarily indicate trending behavior, in which case the slope may give a meaningless signal. For example, the graph below, like the graph above, illustrates a line of best fit that indicates an upward trend. However, unlike the graph above, the levels of the U.S. Equity Futures Constituent in the graph below are widely dispersed and it is less clear that any trend really existed during the Trend Measurement Period.

The Index attempts to reduce the potential for reliance on meaningless Trend Signals by disregarding any Trend Signal that fails to meet a test of statistical significance. If the Trend Signal observed on any Index Business Day does not meet that test, then a Change in Market Regime will not occur and the Index will not change its Selected Portfolio, even if the Signals would otherwise indicate that a change should occur. Generally, the Trend Signal is less likely to be statistically significant when the levels of the U.S. Equity Futures Constituent are more volatile over the Trend Measurement Period; and the Trend Signal is more likely to be statistically significant when the levels of the U.S. Equity Futures Constituent are less volatile over the Trend Measurement Period. One potential consequence of the fact that statistical significance is less likely to be achieved when volatility is higher is that the

IS-29

Index may retain exposure to the Equity-Focused Portfolio at a time of heightened volatility long after the Signals have indicated that a change to a more conservative Portfolio should occur, increasing the potential for large Index declines.

The statistical significance of the Trend Signal is a measure of the statistical probability that there was an actual trend in the level of the U.S. Equity Futures Constituent over the Trend Measurement Period—that is, that there really was a relationship (from a statistical perspective) between the passage of time and the level of the U.S. Equity Futures Constituent during the Trend Measurement Period. It is important to understand the following points about the use of a linear regression to measure the trend of the U.S. Equity Futures Constituent and this measure of the statistical significance of that trend measurement:

A linear regression is a relatively simple statistical method and, as such, is an imprecise tool for measuring the trend in the level of the U.S. Equity Futures Constituent. The trend, if any, in the level of the U.S. Equity Futures Constituent over any prior period is not necessarily an indication of the performance of the U.S. Equity Futures Constituent over any future period. Future conditions may differ from past conditions. Even if future conditions do not differ from past conditions, a well-known theory in academic financial literature states that, if markets are efficient, past performance should not provide any indication of future performance.

The test of statistical significance used by the Index measures the statistical probability that there was a trend over the Trend Measurement Period. It does not measure the probability that this past trend will continue into the future.

The Index is measuring probability in a statistical sense, and not necessarily in the ordinary sense of the word. This measurement of probability is based solely on applying formulas to the levels of the U.S. Equity Futures Constituent over the Trend Measurement Period and does not take into account actual events happening in the real world. The Index may determine that there was a statistically significant probability of a trend in one direction during the Trend Measurement Period when any observer would know, perhaps due to more recent events, that the trend is in fact in the other direction.

There is a time lag inherent in calculating the trend of the U.S. Equity Futures Constituent over a Trend Measurement Period consisting of 21 Index Business Days. If the trend changes, it may be some time before the change is reflected in the slope of the line of best fit. For example, if the U.S. Equity Futures Constituent rose during the first half of the Trend Measurement Period and then declined over the second half of that period – but the decline was not quite as pronounced as the rise – the Index might determine that there was a statistically significant upward trend over the Trend Measurement Period as a whole, even though the more recent trend is clearly downward, as illustrated by the following graph:

Whether a given Trend Signal is deemed to be statistically significant or not is based on an arbitrary cut-off, represented by a number we call “**T-Critical**”. The Trend Signal is deemed to be statistically significant when the absolute value of the slope of the line of best fit, when divided by a measure of how widely dispersed are the levels of the U.S. Equity Futures Constituent (called standard error), is greater than or equal to T-Critical. A measurement that is just above T-Critical would be deemed statistically significant, while a measurement that is just below T-Critical would not, even though there would be a negligible difference between the two measurements in terms of the probability of an actual trend over the Trend Measurement Period. There are measurements that the Index will deem to be statistically significant that would not be deemed statistically significant if a higher T-Critical level were chosen.

The level of T-Critical that has been chosen for the Index corresponds to a statistical concept called a “confidence interval” at the 95% level. It is important to understand that this is a technical statistical concept and does not mean that there is a 95% chance that there was a real trend during the Trend Measurement Period. There can be no assurance that the level of T-Critical chosen for the Index is the right level at which to measure statistical significance for purposes of the Index. A higher level might have provided greater certainty that the Trend Signal is observing meaningful trends by disregarding a greater number of meaningless Trend Signals. Conversely, the T-Critical level chosen might disregard a large number of Trend Signals that actually were meaningful, causing the Index to fail to adjust its Selected Portfolio in a timely manner.

The following table shows:

the number of Changes in Market Regime that occurred during each calendar year from 1998 to 2019 (through April 1, 2019) based on the Index rules – including the Index’s statistical significance test – as indicated in the column titled “With T-Critical” below, and

the number of Changes in Market Regime that would have occurred if the Index methodology did not include the statistical significance test – as indicated in the column titled “Without T-Critical” below.

The table below is based on hypothetical back-tested Index performance information prepared by the Index Administrator from January 12, 1998 to June 12, 2016, and actual Index performance information from June 13, 2016 to April 1, 2019. This information shows, based primarily on hypothetical historical data, how frequently the Signals indicated that a Change in Market Regime had occurred (shown in the column titled “Without T-Critical”), and how frequently the statistical significance test overrode those Signals (the difference between the number in the column titled “Without T-Critical” and the number in the column titled “With T-Critical”). We are providing this information to help you assess the impact of the statistical significance test on the performance of the Index, but it is important to understand that this information is based primarily on hypothetical historical data. Please see “—Hypothetical Back-Tested Index Performance Information” below for important information about the significant limitations of hypothetical back-tested performance information. There can be no assurance that the information shown in the table below will be representative of the impact of the Index’s statistical significance test on its future performance.

### **Number of Changes in Market Regime**

<b><u>Year With T-Critical Without T-Critical</u></b>	
1998 7	15
1999 7	16
2000 13	15
2001 5	9
2002 9	9

IS-31

20037 11  
 20048 12  
 20058 11  
 20066 9  
 20079 13  
 20086 14  
 20096 10  
 20102323  
 20111111  
 20121111  
 20136 8  
 20148 14  
 20151525  
 20161012  
 20176 6  
 20189 13  
 20192 2

For the same period of time covered by the table above, the table below shows the percentage of time that the Index would have had exposure to each Portfolio as the Selected Portfolio, both (i) based on the actual Index methodology, including the statistical significance test, as indicated in the column titled “With T-Critical” below, and (ii) assuming that the Index methodology did not include a statistical significance test, as indicated in the column titled “Without T-Critical” below. This information is based on the same hypothetical back-tested data as the table above and is subject to the same limitations as described with respect to the information in the table above.

**Percentage of Time with Exposure to each Portfolio as the Selected Portfolio**

<b><u>Selected Portfolio</u></b>	<b><u>With T-Critical</u></b>	<b><u>Without T-Critical</u></b>
Equity-Focused Portfolio	35.0%	34.5%
Intermediate Portfolio	41.6%	42.4%
Treasury Portfolio	23.4%	23.1%

See “The Index’s Signal-based Allocation Methodology Has Significant Limitations” in the section “Key Risk Factors Relating to the Index” in this Index Supplement for a further discussion of the limitations of the Trend Signal.

**The Volatility Signal**

On each Index Business Day, the volatility of the U.S. Equity Futures Constituent (the “Volatility Signal”) will be determined based on the 63-Day Realized Volatility of the U.S. Equity Futures Constituent. The “63-Day Realized Volatility” of the U.S. Equity Futures Constituent on any Index Business Day is the volatility of the daily closing value



of the U.S. Equity Futures Constituent over the period of 63 Index Business Days ending on that Index Business Day. It is important to note that the 63-Day Realized Volatility is a historical measure of volatility and

IS-32

does not reflect volatility going forward. Realized volatility is not the same as implied volatility, which is an estimation of future volatility and may better reflect market expectations.

An elevated level of volatility—defined for purposes of the Index as a level exceeding 15%—is used as a Signal to reduce exposure to the U.S. Equity Futures Constituent, thereby attempting to reduce the potential for large Index declines. Reducing exposure to the U.S. Equity Futures Constituent, however, may also significantly reduce the potential for Index gains. From a historical perspective, a volatility of 15% may not represent an unusually elevated level of volatility. Using 15% as a threshold for elevated volatility may therefore result in reduced or eliminated exposure to the U.S. Equity Futures Constituent at a time when equity markets are in fact relatively stable and rising.

### Rebalancing of the Selected Portfolio

If a rebalancing of the Selected Portfolio occurs because a Change in Market Regime occurs, the Constituents of the new Selected Portfolio will be assigned “unit weights” so that their “percentage weights” from but excluding the Rebalancing Date will equal the target percentage weights for the applicable Portfolio as indicated in Table II above. The “unit weight” of any Constituent is a hypothetical number of “units” of that Constituent included in the Index. The “percentage weight” of any Constituent at any time is the percentage of the overall Index level represented by that number of units of that Constituent (taking into account the closing level of that Constituent at the time). On each Rebalancing Date, the Index sets (or resets) the number of units of each Constituent in the Index (i.e., its “unit weight”) so that the number of units of each Constituent multiplied by its closing level on the Rebalancing Date represents its target percentage weight in the Index. After the Rebalancing Date, the percentage weights of the Constituents will fluctuate with changes in their closing levels, but the unit weights will not change until the next Rebalancing Date or pursuant to a change in the Index’s exposure to the Selected Portfolio pursuant to the volatility targeting feature described below.

Rebalancing will not be regular (for example, daily or monthly) but instead will depend on the Signals triggering a Change in Market Regime, which will ultimately depend on market conditions. It is possible that no rebalancing of the Selected Portfolio will occur for significant periods of time or that rebalancing will occur frequently.

### Volatility Target

The Index’s volatility target of 5% is a key feature of the Index and will be a significant determinant of its performance. The performance of the Index will be based on the performance of the Selected Portfolio, *but only* to the extent that the Index has exposure to the Selected Portfolio (and *minus* the index fee). That exposure is adjusted as often as daily in an attempt to maintain the Index’s volatility target of 5%. On any Index Business Day, the exposure of the Index to the Selected Portfolio will be equal to the volatility target of 5% *divided by* the 21-Day Realized Volatility of the current Selected Portfolio, subject to a maximum exposure of 100% and subject to the volatility buffer described below. The “21-Day Realized Volatility” of the current Selected Portfolio on any Index Business Day is the volatility of the daily closing value of the current Selected Portfolio (expressed on an annualized basis) over the

period of 21 Index Business Days ending on the current Index Business Day. It is important to note that the 21-Day Realized Volatility is a historical measure of volatility and does not reflect volatility going forward. Realized volatility is not the same as implied volatility, which is an estimation of future volatility and may better reflect market expectations.

The exposure of the Index to the Selected Portfolio may range from 0% to 100%. An exposure of 100% would mean that the performance of the Index will be equal to the performance of the Selected Portfolio (*minus* the index fee). An exposure of less than 100% would mean that the Index will participate in only a limited degree of the performance of the Selected Portfolio, and the difference between 100% and that exposure will be hypothetically allocated to cash and will accrue no interest or other return. For example, if the 21-Day Realized Volatility of the Selected Portfolio is 10%, then the Index would have 50% exposure to the performance of the Selected Portfolio (the volatility target of 5% *divided by* the 21-Day Realized Volatility of 10%). An exposure of 50% would mean that the Index would participate in only 50% of the performance of the Selected Portfolio. In this example, if the Selected Portfolio were to appreciate by 2%, the Index would only appreciate by 1% (which is 50% of 2%), and if the Selected Portfolio were to depreciate by 2%, the Index would only depreciate by 1%, in each case *minus* the index fee. The difference between 100% and the exposure that the Index has to the Selected Portfolio will be

IS-33

hypothetically allocated to cash. In this example, 50% of the Index would be hypothetically allocated to cash and would accrue no interest or other return.

The calculation of the Index's exposure to the Selected Portfolio on each Index Business Day is subject to a "volatility buffer" of 10%. This means that the exposure will not change from one Index Business Day to the next unless the exposure calculated on a given Index Business Day (based on 21-Day Realized Volatility for the Selected Portfolio on that Index Business Day) is greater than or less than the exposure in effect on the previous Index Business Day by more than 10% (measured as a percentage of the exposure in effect on the previous Index Business Day). For example, if the Index has a 50% exposure to the Selected Portfolio on any given Index Business Day, the Index will not adjust its exposure on any subsequent Index Business Day unless the exposure would exceed 55% or be less than 45% (each such amount representing a 10% difference from 50%).

#### Index Fee

An index fee is deducted in the calculation of the Index. The index fee is deducted from the daily performance of the Index (including the portion of the Index that does not have exposure to the Selected Portfolio due to the volatility targeting feature) at a rate of 0.85% per annum.

#### Index Level Calculation

The level of the Index the ("Index Level") is calculated by the Index Calculation Agent on each Index Business Day, subject to the occurrence of a Disrupted Day as described under "—Disruption to Valuation and Other Adjustments—Consequences of Disrupted Days or Non-Scheduled Trading Days" below. The Index Level as of each Index Business Day is published on Bloomberg page "CIISDA5N<Index>," generally on the following Index Business Day. The Index Level as of any Index Business Day is the closing level of the Index for that Index Business Day. The Index launched on June 13, 2016 and was set to a base Index Level of 100 on the "Index Base Date" of January 12, 1998. "Index Business Day" means each day (1) on which commercial banks and foreign exchange markets are scheduled to be open for general business (including dealings in foreign exchange and foreign exchange currency deposits) in New York City; and (2) which is also a Scheduled Trading Day for each of the Constituents. A "Scheduled Trading Day" means any day on which the relevant Constituent Index Sponsor (or an agent appointed by such Constituent Index Sponsor) is scheduled to publish the level of the relevant Constituent. "Constituent Index Sponsor" means, in respect of any Constituent, the corporation or entity which (1) is responsible for setting and reviewing the rules and procedures and methods of calculations and adjustments, if any, related to such Constituent; and (2) announces (directly or through an agent) the level of such Constituent on a regular basis.

The closing level of each Constituent (the "Constituent Closing Level") will be the official level of the relevant Constituent by reference to the Bloomberg page "SPXFP<Index>" for the U.S. Equity Futures Constituent and by reference to the Bloomberg page "SPUSTTP<Index>" for the U.S. Treasury Futures Constituent.

#### Index Calculation Agent

The Index Administrator has appointed S&P Dow Jones Indices LLC as the “Index Calculation Agent”. The Index Administrator may, in its sole discretion and without notice, appoint an alternative Index Calculation Agent at any time (which may be an affiliate of the Index Administrator).

#### Disruption to Valuation and Other Adjustments

The Index Level of the Index will be published on every Index Business Day. On any Index Business Day, the markets for the assets underlying the Constituents may be disrupted or other events may occur that affect the Constituents or their published levels. This section describes certain events and circumstances and the consequences of those events and circumstances that may affect a Constituent and/or the calculation of the Index.

#### Consequences of Disrupted Days or Non-Scheduled Trading Days

#### Daily Index Calculation.

IS-34

If any Index Business Day (including any date on which the Trend Signal and Volatility Indicator are determined) is not a Scheduled Trading Day for one or more Constituents (each, an “Affected Constituent”), the Index Calculation Agent will calculate the Index Level of the Index for such Index Business Day by reference to (i) for the Constituent which is not an Affected Constituent, the Constituent Closing Level of the relevant Constituent on such Index Business Day and (ii) in respect of each Affected Constituent, the Constituent Closing Level of such Affected Constituent on the first preceding Scheduled Trading Day in respect of such Affected Constituent which is not a Disrupted Day for such Affected Constituent. In the alternative, if any Index Business Day is a Disrupted Day for any Constituent, the Index Calculation Agent may, in its sole discretion, suspend the calculation, publication and dissemination of the Index and its Index Level until the first succeeding Index Business Day which is not a Disrupted Day for any Constituent.

After performing the above adjustment with respect to any Affected Constituent (if applicable), if any Index Business Day (including any date on which the Trend Signal and Volatility Indicator are determined) is a Disrupted Day for any Constituent, the Index Calculation Agent will calculate the Index Level of the Index for such Index Business Day by reference, for each Constituent, the Constituent Closing Level of the relevant Constituent on the immediately following Scheduled Trading Day for all Constituents that is not a Disrupted Day for any Constituent; *provided* that is such date has not occurred by the fifth Scheduled Trading Day following the original Index Business Day, then the Index Calculation Agent may (a) publish its good faith estimate of the Index Level for such Index Business Day (notwithstanding the occurrence of a Disrupted Day), using its good faith estimate of the value of the Constituent(s) affected by the occurrence of a Disrupted Day. Any such estimated value may be subject to correction once the relevant event or circumstances giving rise to such Disrupted Day cease; and/or (b) suspend the calculation, publication and dissemination of the Index and the Index Level until the first succeeding Index Business Day which is not a Disrupted Day for any Constituent.

#### Rebalancing Date.

If any scheduled Rebalancing Date is not a Scheduled Trading Day for one or more Constituents then included (or scheduled to be included) in the Index (each, a “Rebalancing Constituent”), then the Rebalancing Date for each Rebalancing Constituent will be postponed to the next succeeding Index Business Day which is a Scheduled Trading Day for all Rebalancing Constituents.

After performing the above adjustment with respect to any Rebalancing Constituent (if applicable), if any scheduled Rebalancing Date is a Disrupted Day for one or more Rebalancing Constituent, then the rebalancing will be effected for each Rebalancing Constituent that is not affected by a non-Scheduled Trading Day on the originally scheduled Rebalancing Date but will not be effected on the originally scheduled Rebalancing Date for any Rebalancing Constituent that is so affected (each, an “Affected Rebalancing Constituent”), and instead the Rebalancing Date for each Affected Rebalancing Constituent will be postponed to the next succeeding Scheduled Trading Day for such Affected Rebalancing Constituent that is not a Disrupted Day for such Affected Rebalancing Constituent; *provided* that such Rebalancing Date will not be postponed past the fifth Scheduled Trading Day for such Affected Rebalancing Constituent following the scheduled Rebalancing Date and, if such fifth Scheduled Trading Day is a Disrupted Day for such Affected Rebalancing Constituent, then the Index Calculation Agent may (a) publish its good faith estimate of the Index Level for such Index Business Day (notwithstanding the occurrence of a Disrupted Day), using its good faith estimate of the value of the Constituent(s) affected by the occurrence of a Disrupted Day. Any such estimated

value may be subject to correction once the relevant event or circumstances giving rise to such Disrupted Day cease; and/or (b) suspend the calculation, publication and dissemination of the Index and the Index Level until the first succeeding Index Business Day which is not a Disrupted Day for any Constituent.

If any scheduled Rebalancing Date in respect to a Selection Date is a postponed Rebalancing Date in respect of a prior Selection Date, then the Rebalancing Date for each Rebalancing Constituent will be postponed to the next succeeding Index Business Day which is a Scheduled Trading Day for all Rebalancing Constituents and is not a postponed Rebalancing Date.

A “Rebalancing Date” means the Index Business Day immediately following each Selection Date.

A “Selection Date” means each Index Business Day on which the Portfolio determined by the Index Calculation Agent is different from that of the immediately preceding Index Business Day.

IS-35

Definitions of Disrupted Day, Scheduled Trading Day and Related Definitions

“Component” shall mean, in respect of the relevant Constituent, each component included in such Constituent.

A “Disrupted Day” means, with respect to a Constituent, any Scheduled Trading Day on which a Market Disruption Event occurs.

“Exchange” shall mean, in respect of the relevant Component, the primary exchange, trading system or quotation system (“Trading Venue”) in respect of such relevant Component, or any successor to such Trading Venue, or any substitute Trading Venue to which trading in such relevant Component has temporarily relocated, provided that, in the determination of the Index Calculation Agent, there is comparable liquidity in such relevant Component on such temporary substitute Trading Venue as on the original Trading Venue.

“Exchange Business Day” shall mean, in respect of the relevant Constituent, any Scheduled Trading Day for such Constituent on which the relevant Constituent Index Sponsor publishes the level of such Constituent.

A “Market Disruption Event” means, with respect to a Constituent, (1) the relevant Constituent Index Sponsor (or an agent appointed by such Constituent Index Sponsor) fails to publish the level of such Constituent; or (2) the relevant Exchange or any relevant Related Exchange fails to open for trading during its regular trading session; or (3) the occurrence or existence at any time during the one hour period which ends at the relevant Valuation Time of any suspension of or limitation imposed (by reason of movements in price exceeding permitted limits or otherwise) on the trading on (a) any relevant Exchange of Components which in aggregate comprise 20 percent or more of the level of such Constituent; or (b) any relevant Related Exchange of futures contracts or option contracts relating to such Constituent; or (4) the occurrence or existence at any time during the one hour period which ends at the relevant Valuation Time of any other event (other than an event described in (5) or (6) below) which disrupts or impairs the ability of market participants in general (a) (on any relevant Exchange) to effect transactions or to obtain market values for Components which in aggregate comprise 20 percent or more of the level of such Constituent; or (b) (on any relevant Related Exchange) to effect transactions in or to obtain market values for futures contracts or option contracts relating to such Constituent; or (5) the closure (which has a material effect on the Index) on any Exchange Business Day of any relevant Exchange in respect of Components (which in aggregate comprise 20 percent or more of the level of such Constituent) prior to its Scheduled Closing Time (unless such earlier closing time is announced by such Exchange at least one hour prior to (a) the actual closing time for the regular trading session on such Exchange on such Exchange Business Day; and (b) the deadline for the submission of orders to be entered into such Exchange for execution at the relevant Valuation Time on such Exchange Business Day) or (6) the closure (which has a material effect on the Index) on any Exchange Business Day of any relevant Related Exchange in respect of futures contracts or option contracts relating to such Constituent prior to its Scheduled Closing Time, unless such earlier closing time is announced by such Related Exchange at least one hour prior to (a) the actual closing time for the regular trading session on such Related Exchange on such Exchange Business Day; and (b) the deadline for the submission of orders to be entered into such Related Exchange for execution at the relevant Valuation Time on such Exchange Business Day. For the purposes of determining whether or not a Market Disruption Event exists in respect of the relevant Constituent at any time, if an event giving rise to a Market Disruption Event occurs in respect of a Component



included in such Constituent at that time, then the relevant percentage contribution of such Component to the level of such Constituent shall be based on a comparison of (1) the portion of the level of such Constituent attributable to such Component; and (2) the overall level of such Constituent immediately before the occurrence of such Market Disruption Event.

“Related Exchange” shall mean, in respect of the relevant Constituent, each Trading Venue in respect of futures contracts or option contracts relating to such Constituent, or any successor to such Trading Venue, or any substitute Trading Venue to which trading in such futures contracts or option contracts has temporarily relocated, provided that, in the determination of the Index Calculation Agent, there is comparable liquidity in such futures contracts or option contracts on such temporary substitute Trading Venue as on the original Trading Venue.

“Scheduled Closing Time” shall mean, in respect of a Scheduled Trading Day and an Exchange or Related Exchange (as relevant), the scheduled weekday closing time on such Exchange or Related Exchange (as relevant) on such Scheduled Trading Day, without regard to after-hours trading or any other trading outside the hours of the regular trading session on such Exchange or Related Exchange.

IS-36

A “Scheduled Trading Day” means, with respect to a Constituent, any day on which the relevant Constituent Index Sponsor (or an agent appointed by such Constituent Index Sponsor) is scheduled to publish the level of the relevant Constituent.

“Valuation Time” shall mean, in respect of the relevant Constituent, a closing level of a Constituent and a Scheduled Trading Day for such Constituent, either (1) the Scheduled Closing Time on the relevant Exchange on such Scheduled Trading Day; or if the level of such Constituent is only published once a day (a) for the purposes of determining whether a Market Disruption Event has occurred: (i) in respect of any Component, the time at which such Component is valued for the purposes of determining the level of such Constituent for the relevant day; and (ii) in respect of any futures contract or options contract relating to such Constituent, the close of trading on the relevant Related Exchange; and (b) in all other circumstances, the time when the official closing level of such Constituent for such day is calculated and published by the relevant Constituent Index Sponsor.

#### Adjustments and Modifications

*Regulatory Events.* If the Index Calculation Agent determines that either (i) a hypothetical broker dealer (subject to a regulatory regime comparable to the regime applicable to U.S.-registered broker-dealers) would be either (a) required (or there is a reasonable likelihood that, within the next 30 Index Business Days, it would be required) to unwind positions in, or dispose of, any instrument or security on which the value of a Constituent depends; or (b) not permitted (or there is a reasonable likelihood that, within the next 30 Index Business Days, it would not be permitted) to hold, acquire, establish, increase, decrease or dispose of positions in any instrument or security on which the value of a Constituent depends; or (2) the Index Administrator or the Index Calculation Agent is not permitted (or there is a reasonable likelihood that, within the next 30 Index Business Days, it will not be permitted) to continue to sponsor, administer, maintain or calculate, as applicable, an index which contains a particular instrument or security on which the value of a Constituent depends, then a regulatory event (a “Regulatory Event”) will be deemed to have occurred. Following the occurrence of a Regulatory Event, the Index Calculation Agent shall determine whether or not such occurrence has a material effect on the Index. If the Index Calculation Agent determines that such occurrence has a material effect on the Index, then the Index Calculation Agent shall inform the Index Administrator of such determination and either (a) the Index Administrator shall follow procedures established by the index governance committee in order to amend the Index and the Index Rules or (b) the Index Administrator may discontinue and cancel the Index. If the Index Calculation Agent determines that such occurrence does not have a material effect on the Index, then with effect from (and including) a date designated by the Index Administrator (in which case the Index Administrator will notify the relevant date to the Index Calculation Agent) or the Index Calculation Agent (a) the Constituent affected by such Regulatory Event (the “Removed Constituent”) shall be removed from the Index; and (b) subject to the Index methodology and the Expert Judgment of the Index Calculation Agent, either (i) the weight of the remaining Constituent shall be scaled up such that the weight of the Removed Constituent is proportionately redistributed to the remaining Constituent; or (ii) the Index Calculation Agent may replace the Removed Constituent with a replacement constituent which has substantially similar characteristics to the Removed Constituent, having regard to the manner in which the Removed Constituent is used in the calculation of the Index, in which case the Index Calculation Agent will determine the effective date of such replacement and make such adjustment(s) to the Index Rules as it determines appropriate to account for the effect on the Index of such replacement. “Expert Judgment” means a standard of judgment which shall consist of (1) acting in good faith and in a commercially reasonable manner; (2) to the extent practicable, reflecting the commercial objective of the Index and market practice; and (3) to the extent practicable, promoting consistency in the exercise of discretions and the making of determinations in respect of both the Index and other indices in respect of which it acts, as relevant, as index administrator or index

calculation agent.

*Consequences of Adjustment Events.* If an Adjustment Event (as defined below) occurs in respect of a Constituent (the “Affected Constituent”), then (a) the Index Calculation Agent may suspend the calculation, publication and dissemination of the Index and the Index Level until the first succeeding Index Business Day on which such Adjustment Event does not occur or continue to occur; and/or (b) the Index Calculation Agent may replace the Affected Constituent with a replacement constituent which has substantially similar characteristics to the Affected Constituent, having regard to the manner in which the Affected Constituent is used in the calculation of the Index, in which case the Index Calculation Agent will determine the effective date of such replacement and make such adjustment(s) to the Index Rules as it determines appropriate to account for the effect on the Index of such replacement and/or (c) the Index Administrator may discontinue and cancel the Index.

IS-37

Definition of Adjustment Event and Related Definitions.

“Adjustment Event” means, in respect of a Constituent, the occurrence of any of the following events: a Constituent Index Cancellation, a Constituent Index Modification or a Constituent Licensing Event.

“Constituent Index Cancellation” means in respect of a Constituent, that the relevant Constituent Index Sponsor permanently cancels such index.

“Constituent Index Modification” means, in respect of any Constituent, that the relevant Constituent Index Sponsor announces that it will make a material change in the formula for or method of calculating such Constituent or in any other way materially modifies such Constituent (other than a modification prescribed in that formula or method to maintain such Constituent in the event of routine events).

“Constituent Index Sponsor” shall mean, in respect of any Constituent, the corporation or entity which (1) is responsible for setting and reviewing the rules and procedures and methods of calculations and adjustments, if any, related to such Constituent; and (2) announces (directly or through an agent) the level of such Constituent on a regular basis.

A “Constituent Licensing Event” means, in respect of a Constituent, that (1) any license granted to the Index Administrator and/or the Index Calculation Agent and/or any of their respective affiliates to use such Constituent in connection with the Index is terminated; or (2) any such person’s right to use such Constituent in connection with the Index is otherwise disputed, impaired or ceases for any reason.

Suspension and Cancellation

The Index Administrator may discontinue and cancel the Index at any time and is under no obligation to continue, or to procure the continuation of, the calculation, publication and dissemination of the Index and the Index Level.

Corrections, Calculations and Determinations

Subject to any Correction Period specified, if the Index Calculation Agent becomes aware that any of the information, data sources or factors specified in the Index Rules and any amount, currency amount, level, percentage, price, rate or value (together, “Information”) used by it in connection with any calculation, determinations, rebalancings and adjustments under the Index Rules has subsequently been corrected or adjusted, then the Index Calculation Agent

(1) if the Correction Period does not include a Rebalancing Date, shall use such corrected or adjusted Information and as a consequence make any further calculation, determinations, rebalancings and adjustments that it determines necessary or desirable in order to give effect to or to reflect such corrected or adjusted Information, including without limitation any redenomination, exchange or conversion of any currency into a successor currency; or (2) if the Correction Period includes a Rebalancing Date, may, but shall not be obliged to, use such corrected or adjusted Information (in its Expert Judgment, and the Index Calculation Agent will exercise such Expert Judgment in a manner that is consistent with the primary objective of the Index.

If the level, price, rate or value (as applicable) of any Constituent for any time on any day, that is (1) announced by or on behalf of the person or entity responsible for such publication or announcement; and (2) used for any calculation or determination in respect of the Index, is subsequently corrected, and the corrected level, price, rate or value (as applicable) (the "Corrected Level") is published by or on behalf of such person or entity within the correction period of 30 calendar days (the "Correction Period") in respect of such Constituent, then such Corrected Level shall be deemed to be the level, price, rate or value (as applicable) for such Constituent for the relevant time on the relevant day. If the Correction Period does not include a Rebalancing Date, then the Index Calculation Agent shall revise the Index Level for such day. If the Correction Period includes a Rebalancing Date, then the Index Calculation Agent may, but shall not be obliged to, make appropriate adjustments to the Index Level for such day (using Expert Judgment), and the Index Calculation Agent will exercise such Expert Judgment in a manner that is consistent with the primary objective of the Index.

The Index Calculation Agent will perform all calculations, determinations, rebalancings and adjustments in respect of the Index. However, all of the Index Calculation Agent's calculations, determinations, rebalancings and

adjustments are subject to review by the Index Administrator and, in the event of any conflict, the Index Administrator's determinations will control. Neither the Index Calculation Agent nor the Index Administrator will have any responsibility for errors made in good faith or omissions in calculations or other actions as provided in these Index Rules.

The calculations determinations, rebalancings and adjustments of the Index Calculation Agent shall be performed by it in accordance with the Index Rules, acting in its sole, absolute and unfettered discretion, but in good faith and in a commercially reasonable manner (having regard in each case to the criteria stipulated in the Index Rules and, where relevant, on the basis of information provided to or obtained by employees or officers of the Index Calculation Agent responsible for making relevant calculations determinations, rebalancings and adjustments). All calculations determinations, rebalancings and adjustments shall, in the absence of manifest error, be final, conclusive and binding on any user of the Index.

Although the Index Rules are intended to be comprehensive, it is possible that ambiguities, errors and omissions may arise in certain circumstances. The Index Administrator will resolve, using Expert Judgment, any such ambiguity, error or omission, and may amend the Index Rules to reflect the resolution of such ambiguity, error or omission.

Notwithstanding that certain calculations determinations, rebalancings and adjustments under the Index Rules may be expressed to be "as at", "as of", "in respect of" or "on", or any synonym of each such phrase, a certain date or time, the Index Calculation Agent may perform such Calculation in respect of such date or time after such date or time.

In performing any calculation, determinations, rebalancings and adjustments or other action in connection with the Index Rules, each of the Index Administrator and the Index Calculation Agent will act as principal and not as agent of any other person. Neither the Index Administrator nor the Index Calculation Agent owes any duty of care or any fiduciary duty to any investor in any security, contract or other financial product the return of which is linked, in whole or in part, to the performance of the Index or to any other person. Each calculation, determination, rebalancing and adjustment and other action performed in connection with the Index Rules by the Index Administrator or the Index Calculation Agent is performed in reliance on this provision and is subject to this provision.

If through performing any such calculation, determination, rebalancing and adjustment or other action the Index Administrator or the Index Calculation Agent is rendered an agent or fiduciary of another person under applicable law, then (at the option of the Index Administrator or the Index Calculation Agent, as relevant) the rights and obligations of the Index Administrator or the Index Calculation Agent to perform such calculation or other action may be suspended (or, if already performed, the application of such calculation, determination, rebalancing or other action may be suspended) until such time when such calculation, determination, rebalancing or other action can be performed either by the Index Administrator or the Index Calculation Agent as principal and not as an agent or fiduciary or by an appropriate third party who is both willing and able to perform such calculation, determination, rebalancing or other action.

## Hypothetical Back-Tested Index Performance Information

The applicable pricing supplement will contain hypothetical back-tested performance information for the Index. All Index performance information prior to June 13, 2016 is hypothetical and back-tested, as the Index did not exist prior to that date. Hypothetical back-tested Index performance information is subject to significant limitations. The Index Administrator developed the Index Rules with the benefit of hindsight—that is, with the benefit of being able to evaluate how the Index Rules would have caused the Index to perform had it existed during the hypothetical back-tested period. The fact that the Index generally appreciated over the hypothetical back-tested period may not therefore be an accurate or reliable indication of any fundamental aspect of the Index methodology. Furthermore, the hypothetical back-tested performance of the Index might look different if it covered a different historical period. The market conditions that existed during the hypothetical back-tested period may not be representative of market conditions that will exist in the future.

The hypothetical back-tested Index information has been calculated by the Index Administrator. The S&P 500 Futures Excess Return Index was not published prior to August 11, 2010 and the S&P 10-Year U.S. Treasury Note

Futures Index was not published prior to March 28, 2011. For the periods before the Constituents were first published, the index sponsor of the Constituents prepared hypothetical back-tested index levels for each Constituent. The hypothetical back-tested Index levels have been calculated by the Index Administrator by applying the Index methodology substantially as described above to the actual Constituent Closing Levels of the Constituents for the periods since their initial publication and to the hypothetical back-tested index levels of the Constituents prepared by the index sponsor of the Constituents for the periods prior to their initial publication. The Index Administrator is not aware of the assumptions made by the index sponsor of the Constituents when it calculated the hypothetical back-tested index levels for the Constituents.

Accordingly, the hypothetical back-tested Index performance information, to the extent that it utilizes hypothetical back-tested data of the Constituents, may not reflect how the Index would have performed had the Constituents existed during the relevant time period.

**It is impossible to predict whether the Index will rise or fall. By providing hypothetical back-tested and historical Index performance information in connection with the Notes, we are not representing that the Index is likely to achieve gains or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular investment. One of the limitations of hypothetical performance information is that it did not involve financial risk and cannot account for all factors that would affect actual performance. The actual future performance of the Index may bear no relation to the hypothetical or historical back-tested performance of the Index.**

IS-40



## **BENEFIT PLAN INVESTOR CONSIDERATIONS**

A fiduciary of a pension, profit-sharing or other employee benefit plan subject to the Employee Retirement Income Security Act of 1974, as amended (“ERISA”), including entities such as collective investment funds, partnerships and separate accounts whose underlying assets include the assets of such plans (collectively, “ERISA Plans”), should consider the fiduciary standards of ERISA in the context of the ERISA Plan’s particular circumstances before authorizing an investment in the Notes. Among other factors, the fiduciary should consider whether the investment would satisfy the prudence and diversification requirements of ERISA and would be consistent with the documents and instruments governing the ERISA Plan.

Section 406 of ERISA and Section 4975 of the Internal Revenue Code of 1986, as amended, (the “Code”) prohibit ERISA Plans, as well as plans (including individual retirement accounts and Keogh plans) subject to Section 4975 of the Code (together with ERISA Plans, “Plans”), from engaging in certain transactions involving the “plan assets” with persons who are “parties in interest” under ERISA or “disqualified persons” under Section 4975 of the Code (in either case, “Parties in Interest”) with respect to such Plans. As a result of our business, we, and our current and future affiliates, may be Parties in Interest with respect to many Plans. Where we (or our affiliate) are a Party in Interest with respect to a Plan (either directly or by reason of our ownership interests in our directly or indirectly owned subsidiaries), the purchase and holding of the Notes by or on behalf of the Plan could be a prohibited transaction under Section 406 of ERISA and/or Section 4975 of the Code, unless exemptive relief were available under an applicable exemption (as described below).

Certain prohibited transaction class exemptions (“PTCEs”) issued by the U.S. Department of Labor may provide exemptive relief for direct or indirect prohibited transactions resulting from the purchase or holding of the Notes. Those class exemptions are PTCE 96-23 (for certain transactions determined by in-house asset managers), PTCE 95-60 (for certain transactions involving insurance company general accounts), PTCE 91-38 (for certain transactions involving bank collective investment funds), PTCE 90-1 (for certain transactions involving insurance company separate accounts) and PTCE 84-14 (for certain transactions determined by independent qualified asset managers). In addition, ERISA Section 408(b)(17) and Section 4975(d)(20) of the Code may provide a limited exemption for the purchase and sale of the Notes and related lending transactions, *provided* that neither the issuer of the Notes nor any of its affiliates have or exercise any discretionary authority or control or render any investment advice with respect to the assets of the Plan involved in the transaction and *provided further* that the Plan pays no more, and receives no less, than adequate consideration in connection with the transaction (the so-called “service provider exemption”). There can be no assurance that any of these statutory or class exemptions will be available with respect to transactions involving the Notes.

Accordingly, the Notes may not be purchased or held by any Plan, any entity whose underlying assets include “plan assets” by reason of any Plan’s investment in the entity (a “Plan Asset Entity”) or any person investing “plan assets” of any Plan, unless such purchaser or holder is eligible for the exemptive relief available under PTCE 96-23, 95-60, 91-38, 90-1 or 84-14 or the service provider exemption or there is some other basis on which the purchase and holding of the Notes will not constitute a non-exempt prohibited transaction under ERISA or Section 4975 of the Code. Each purchaser or holder of the Notes or any interest therein will be deemed to have represented by its purchase or holding of the Notes that (a) it is not a Plan and its purchase and holding of the Notes is not made on behalf of or with “plan assets” of any Plan or (b) its purchase and holding of the Notes will not result in a non-exempt prohibited transaction

under Section 406 of ERISA or Section 4975 of the Code.

Certain governmental plans (as defined in Section 3(32) of ERISA), church plans (as defined in Section 3(33) of ERISA) and non-U.S. plans (as described in Section 4(b)(4) of ERISA) ("Non-ERISA Arrangements") are not subject to these "prohibited transaction" rules of ERISA or Section 4975 of the Code, but may be subject to similar rules under other applicable laws or regulations ("Similar Laws"). Accordingly, each such purchaser or holder of the Notes shall be required to represent (and deemed to have represented by its purchase of the Notes) that such purchase and holding is not prohibited under applicable Similar Laws.

Due to the complexity of these rules, it is particularly important that fiduciaries or other persons considering purchasing the Notes on behalf of or with "plan assets" of any Plan consult with their counsel regarding the relevant provisions of ERISA, the Code or any Similar Laws and the availability of exemptive relief under PTCE 96-23, 95-60, 91-38, 90-1, 84-14, the service provider exemption or some other basis on which the acquisition and holding will not constitute a non-exempt prohibited transaction under ERISA or Section 4975 of the Code or a violation of any applicable Similar Laws.

IS-41

The Notes are contractual financial instruments. The financial exposure provided by the Notes is not a substitute or proxy for, and is not intended as a substitute or proxy for, individualized investment management or advice for the benefit of any purchaser or holder of the Notes. The Notes have not been designed and will not be administered in a manner intended to reflect the individualized needs and objectives of any purchaser or holder of the Notes.

Each purchaser and holder of the Notes has exclusive responsibility for ensuring that its purchase, holding and subsequent disposition of the Notes does not violate the fiduciary or prohibited transaction rules of ERISA, the Code or any applicable Similar Laws. The sale of any Notes to any Plan is in no respect a representation by us or any of our affiliates or representatives that such an investment meets all relevant legal requirements with respect to investments by Plans or Non-ERISA Arrangements generally or any particular Plan or Non-ERISA Arrangement, or that such an investment is appropriate for Plans or Non-ERISA Arrangements generally or any particular Plan or Non-ERISA Arrangement.

However, individual retirement accounts, individual retirement annuities and Keogh plans, as well as employee benefit plans that permit participants to direct the investment of their accounts, will not be permitted to purchase or hold the Notes if the account, plan or annuity is for the benefit of an employee of CGMI or a family member and the employee receives any compensation (such as, for example, an addition to bonus) based on the purchase of Notes by the account, plan or annuity.

IS-42

## UNITED STATES FEDERAL TAX CONSIDERATIONS

The following is a discussion of the material U.S. federal income and certain estate tax consequences of the ownership and disposition of the Notes. It applies to you only if you purchase a Note for cash in the initial offering at the “issue price,” which is the first price at which a substantial amount of the Notes is sold to the public, and hold the Note as a capital asset within the meaning of Section 1221 of the Code. This discussion does not address all of the tax consequences that may be relevant to you in light of your particular circumstances or if you are a holder subject to special rules, such as:

- a financial institution;

- a “regulated investment company”;

- a tax-exempt entity, including an “individual retirement account” or “Roth IRA”;

- a dealer or trader subject to a mark-to-market method of tax accounting with respect to the Notes;

- a person holding a Note as part of a “straddle” or conversion transaction or one who enters into a “constructive sale” with respect to a Note;

- a person subject to the alternative minimum tax;

- a U.S. Holder (as defined below) whose functional currency is not the U.S. dollar; or

- an entity classified as a partnership for U.S. federal income tax purposes.

If an entity that is classified as a partnership for U.S. federal income tax purposes holds the Notes, the U.S. federal income tax treatment of a partner will generally depend on the status of the partner and the activities of the partnership. If you are a partnership holding the Notes or a partner in such a partnership, you should consult your tax adviser as to the particular U.S. federal tax consequences of holding and disposing of the Notes to you.

We will not attempt to ascertain whether any issuer of any Underlying Shares, or shares that underlie an Underlying Index, to which the Notes relate (collectively, the “Underlying Equity”) should be treated as a “U.S. real property holding corporation” (“USRPHC”) within the meaning of Section 897 of the Code. If any issuer of the Underlying Equity were so treated, certain adverse U.S. federal income tax consequences might apply to you if you are a Non-U.S. Holder (as defined below) upon a sale, exchange or other disposition of the Notes. You should refer to information filed with the Securities and Exchange Commission or another governmental authority by the issuers of the Underlying Equity and

consult your tax adviser regarding the possible consequences to you if any issuer of Underlying Equity is or becomes a USRPHC.

This discussion is based on the Code, administrative pronouncements, judicial decisions and final, temporary and proposed Treasury regulations, all as of the date of this index supplement, changes to any of which subsequent to the date of this index supplement may affect the tax consequences described herein, possibly with retroactive effect. This discussion does not address the effects of any applicable state, local or non-U.S. tax laws or the potential application of the Medicare contribution tax. You should consult your tax adviser about the application of the U.S. federal income and estate tax laws (including the possibility of alternative treatments of the Notes) to your particular situation, as well as any tax consequences arising under the laws of any state, local or non-U.S. jurisdiction.

This discussion may be supplemented, modified or superseded by disclosure regarding U.S. federal tax consequences set out in an applicable pricing supplement, which you should read before making a decision to invest in the relevant Notes.

### **Tax Treatment of the Notes**

Unless otherwise indicated in the applicable pricing supplement, we intend to treat the Notes as debt instruments for U.S. federal income tax purposes, and the discussion herein is based on this treatment. With respect to Notes with a term of longer than one year (calculated as described below), the applicable pricing supplement will specify whether we intend to treat such Notes as “variable rate debt instruments” or as “contingent payment debt instruments,” each as discussed below.

IS-43

The discussion below is subject to the discussion under “—Assumption by Citigroup Inc.” and should be read in conjunction therewith.

### **Tax Consequences to U.S. Holders**

This section applies only to U.S. Holders. You are a “U.S. Holder” if for U.S. federal income tax purposes you are a beneficial owner of a Note that is:

· a citizen or individual resident of the United States;

· a corporation created or organized in or under the laws of the United States, any state thereof or the District of Columbia; or

· an estate or trust the income of which is subject to U.S. federal income taxation regardless of its source.

Legislation enacted in 2017 modified the rules regarding the timing of income to be recognized by accrual method taxpayers. Under this legislation, if you are an accrual method taxpayer, notwithstanding the discussion below, you may be required to include income on a Note no later than when the relevant item is taken into account as revenue in an applicable financial statement. You should consult your tax adviser concerning the application of these rules in your particular situation.

### ***Short-Term Notes***

The following discussion applies only to Notes with a term of one year or less (from but excluding the issue date to and including the last possible date that the Notes could be outstanding pursuant to their terms) (“Short-Term Notes”). Generally, a Short-Term Note is treated as issued at a discount equal to the sum of all payments required on the Note minus its issue price.

If you are a cash-method U.S. Holder, you generally will not be required to recognize income with respect to a Short-Term Note prior to maturity, other than with respect to the receipt of interest payments, if any, or pursuant to a sale or other taxable disposition of the Note. If you are an accrual-method U.S. Holder (or a cash-method U.S. Holder who elects to accrue income on the Note currently), you will be subject to rules that generally require accrual of discount on Short-Term Notes on a straight-line basis, unless you elect a constant-yield method of accrual based on daily compounding. It is not clear whether or how any accrual should be determined prior to the relevant Valuation Date(s) in respect of a payment. You should consult your tax adviser regarding the amount and timing of any accruals on such Notes.

Upon a sale, exchange or retirement (each, a “taxable disposition”) of a Short-Term Note, you will generally recognize gain or loss equal to the difference between the amount realized on the sale or other taxable disposition and your tax basis in the Note. Your tax basis in the Note should equal the amount paid to acquire the Note increased, if you accrue income on the Notes currently, by any previously accrued but unpaid discount. The amount of any resulting loss generally will be treated as a short-term capital loss, the deductibility of which is subject to limitations. The excess of the amount received at maturity over your tax basis in the Note generally should be treated as ordinary income. If you sell a Short-Term Note providing for a contingent return at maturity prior to the time the contingent return has been fixed, it is not clear whether any gain you recognize should be treated as ordinary income, short-term capital gain, or a combination of ordinary income and short-term capital gain. You should consult your tax adviser regarding the treatment of Short-Term Notes providing for contingent payments.

If you are a cash-method U.S. Holder, unless you make the election to accrue income currently on a Short-Term Note, you will generally be required to defer deductions for interest paid on indebtedness incurred to purchase or carry the Note in an amount not exceeding the accrued discount that you have not included in income. As discussed above, it is unclear whether or how accrual of discount should be determined prior to the relevant Valuation Date(s) in respect of a payment. If you make the election to accrue income currently, that election will apply to all Short-Term Notes acquired by you on or after the first day of the first taxable year to which that election applies. You should consult your tax adviser regarding these rules.

IS-44

*Notes Treated as Variable Rate Debt Instruments*

The following discussion applies only to Notes that are properly treated as variable rate debt instruments for U.S. federal income tax purposes (“VRDIs”) and that provide for stated interest at a single variable rate. The treatment of other VRDIs will be addressed in the applicable pricing supplement.

Stated interest on a VRDI will be treated as “qualified stated interest” (“QSI”) and will be taxable to you as ordinary interest income at the time it accrues or is received, in accordance with your method of tax accounting. If the stated principal amount of a VRDI exceeds its issue price by at least a specified de minimis amount, this excess will be treated as “original issue discount” (“OID”) that you must include in income as it accrues in accordance with a constant-yield method based on compounding of interest before the receipt of cash payments attributable to this income.

Upon the sale or other taxable disposition of a VRDI, you generally will recognize capital gain or loss equal to the difference between the amount realized (other than amounts attributable to accrued QSI, which will be treated as described above) and your tax basis in the VRDI. Your tax basis in a VRDI will equal the amount you paid to purchase the VRDI, increased by the amounts of OID (if any) you previously included in income with respect to the VRDI and reduced by any payments other than QSI you received. Such gain or loss generally will be long-term capital gain or loss if you held the VRDI for more than one year at the time of disposition. The deductibility of capital losses is subject to limitations.

*Notes Treated as Contingent Payment Debt Instruments*

The following discussion applies only to Notes that are properly treated as contingent payment debt instruments for U.S. federal income tax purposes (“CPDIs”).

We are required to determine a “comparable yield” for each issuance of CPDIs. The comparable yield is the yield at which we could issue a fixed-rate debt instrument with terms similar to those of the CPDIs, including the level of subordination, term, timing of payments and general market conditions, but excluding any adjustments for the riskiness of the contingencies or the liquidity of the CPDIs. Solely for purposes of determining the amount of interest income that you will be required to accrue, we are also required to construct a “projected payment schedule” in respect of the CPDIs representing a payment or a series of payments the amount and timing of which would produce a yield to maturity on the CPDIs equal to the comparable yield.

**Neither the comparable yield nor the projected payment schedule constitutes a representation by us regarding the actual amounts that we will pay on the CPDIs.**



For U.S. federal income tax purposes, you are required to use our determination of the comparable yield and projected payment schedule in determining interest accruals and adjustments in respect of the CPDIs, unless you timely disclose and justify the use of other estimates to the IRS. Regardless of your method of tax accounting for U.S. federal income tax purposes, you will be required to accrue, as interest income, OID on the CPDIs at the comparable yield, adjusted upward or downward to reflect the difference, if any, between the actual and the projected payments on the CPDIs during the year (as described below).

You will be required for U.S. federal income tax purposes to accrue an amount of OID, for each accrual period prior to and including the maturity (or earlier sale or other taxable disposition) of a CPDI, that equals the product of (i) the “adjusted issue price” of the CPDI (as defined below) as of the beginning of the accrual period, (ii) the comparable yield of the CPDI, adjusted for the length of the accrual period and (iii) the number of days during the accrual period that you held the CPDI divided by the number of days in the accrual period. The adjusted issue price of a CPDI is its issue price increased by any interest income you have previously accrued (determined without regard to adjustments due to differences between projected and actual payments) and decreased by the projected amounts of any payments previously made on the CPDI (without regard to actual amounts paid).

In addition to interest accrued based upon the comparable yield as described above, you will be required to recognize interest income equal to the amount of any net positive adjustment (*i.e.*, the excess of actual payments over projected payments) in respect of a CPDI for a taxable year. A net negative adjustment (*i.e.*, the excess of projected payments over actual payments) in respect of a CPDI for a taxable year:

will first reduce the amount of interest in respect of the CPDI that you would otherwise be required to include in income in the taxable year; and

to the extent of any excess, will give rise to an ordinary loss, but only to the extent that the amount of all previous interest inclusions under the CPDI exceeds the total amount of the net negative adjustments treated as ordinary loss on the CPDI in prior taxable years.

A net negative adjustment is not treated as a miscellaneous itemized deduction (for which deductions would be unavailable or, beginning in 2026, available only to a limited extent). Any net negative adjustment in excess of the amounts described above may be carried forward to offset future interest income in respect of the CPDI or to reduce the amount realized on a sale or other taxable disposition of the CPDI.

Upon a sale or other taxable disposition of a CPDI, you generally will recognize taxable income or loss equal to the difference between the amount received and your tax basis in the CPDI. Your tax basis in the CPDI will equal your purchase price for the CPDI increased by any interest income you have previously accrued (determined without regard to adjustments due to differences between projected and actual payments) and decreased by the projected amounts of any payments previously made on the CPDI (without regard to actual amounts paid). At maturity, you will be treated as receiving the projected amount for that date, and any difference between the amount actually received and that projected amount will be treated as a positive or negative adjustment governed by the rules described above. As described above, the amount you are treated as receiving upon a disposition of a CPDI, whether at or prior to maturity, will be reduced by any carryforward of a net negative adjustment. You generally must treat any income as interest income and any loss as ordinary loss to the extent of previous interest inclusions (reduced by the total amount of net negative adjustments previously taken into account as ordinary losses), and the balance as capital loss. These losses are not treated as miscellaneous itemized deductions. The deductibility of capital losses, however, is subject to limitations. Additionally, if you recognize a loss above certain thresholds, you may be required to file a disclosure statement with the IRS. You should consult your tax adviser regarding this reporting obligation.

Special rules may apply if all the remaining payments on a CPDI become fixed substantially contemporaneously. For this purpose, payments will be treated as fixed if the remaining contingencies with respect to them are remote or incidental. Under these rules, you would be required to account for the difference between the originally projected payments and the fixed payments in a reasonable manner over the period to which the difference relates. In addition, you would be required to make adjustments to, among other things, your accrual periods and your tax basis in the CPDI. The character of any gain or loss on a sale or other taxable disposition of your CPDI also might be affected. If one or more (but not all) contingent payments on a CPDI became fixed more than six months prior to the relevant payment date(s), you would be required to account for the difference between the originally projected payment(s) and the fixed payment(s) on a present value basis. You should consult your tax adviser regarding the application of these rules.

### **Tax Consequences to Non-U.S. Holders**

This section applies only to Non-U.S. Holders. You are a “Non-U.S. Holder” if for U.S. federal income tax purposes you are a beneficial owner of a Note that is:

an individual who is classified as a nonresident alien;

a foreign corporation; or

a foreign trust or  
estate.

You are not a Non-U.S. Holder for purposes of this discussion if you are (i) an individual who is present in the United States for 183 days or more in the taxable year of disposition or (ii) a former citizen or resident of the United States and certain conditions apply. If you are or may become such a person during the period in which you hold a Note, you should consult your tax adviser regarding the U.S. federal tax consequences of an investment in the Notes.

Subject to the possible application of Section 897 of the Code and the discussions below under “—Possible Withholding Under Section 871(m) of the Code” and “FATCA,” you generally will not be subject to U.S. federal withholding or income tax in respect of payments on or amounts received on a sale or other taxable disposition of a Note, provided that (i) income in respect of the Notes is not effectively connected with your conduct of a trade or business in the United States, and (ii) you provide an appropriate IRS Form W-8 certifying under penalties of perjury that you are not a United States person.

IS-46

If you are engaged in a U.S. trade or business, and if income from the Notes is effectively connected with your conduct of that trade or business, you generally will be subject to regular U.S. federal income tax with respect to that income in the same manner as if you were a U.S. Holder, subject to the provisions of an applicable income tax treaty. In this event, if you are a corporation, you should also consider the potential application of a 30% (or lower treaty rate) branch profits tax.

***Possible Withholding Under Section 871(m) of the Code***

Section 871(m) of the Code and the Treasury regulations thereunder ("Section 871(m)") impose a 30% (or lower treaty rate) withholding tax on "dividend equivalents" paid or deemed paid to Non-U.S. Holders with respect to certain financial instruments linked to U.S. equities ("Underlying Securities"), as defined under the applicable Treasury regulations, or indices that include Underlying Securities. Section 871(m) generally applies to "specified equity-linked instruments" ("Specified ELIs"), which are financial instruments that substantially replicate the economic performance of one or more Underlying Securities, as determined based on tests set forth in the applicable Treasury regulations and discussed further below. Section 871(m) provides certain exceptions to this withholding regime, in particular for instruments linked to certain broad-based indices that meet requirements set forth in the applicable Treasury regulations ("Qualified Indices") as well as securities that track such indices ("Qualified Index Securities").

Although the Section 871(m) regime became effective in 2017, Treasury regulations, as modified by an IRS notice, phase in the application of Section 871(m) as follows:

For financial instruments issued prior to 2021, Section 871(m) will generally apply only to financial instruments that have a "delta" of one.

For financial instruments issued in 2021 and thereafter, Section 871(m) will apply if either (i) the "delta" of the relevant financial instrument is at least 0.80, if it is a "simple" contract, or (ii) the financial instrument meets a "substantial equivalence" test, if it is a "complex" contract.

Delta is generally defined as the ratio of the change in the fair market value of a financial instrument to a small change in the fair market value of the number of shares of the Underlying Security. The "substantial equivalence" test measures whether a complex contract tracks its "initial hedge" (shares of the Underlying Security that would fully hedge the contract) more closely than would a "benchmark" simple contract with a delta of 0.80.

The calculations are generally made at the "calculation date," which is the earlier of (i) the time of pricing of the Note, i.e., when all material terms have been agreed on, and (ii) the issuance of the Note. However, if the time of pricing is more than 14 calendar days before the issuance of the Note, the calculation date is the date of the issuance of the Note. In those circumstances, information regarding our final determinations for purposes of Section 871(m) may be available only after the time of pricing of the Note. As a result, you should acquire such a Note only if you are willing to accept the risk that the Note is treated as a Specified ELI subject to withholding under Section 871(m).

If the terms of a Note are subject to a “significant modification,” (for example, upon an event discussed below under “Assumption by Citigroup Inc.”), the Note generally will be treated as reissued for this purpose at the time of the significant modification, in which case the Notes could become Specified ELIs at that time.

If a Note is a Specified ELI, withholding in respect of dividend equivalents will, depending on the applicable withholding agent’s circumstances, generally be required either (i) on the underlying dividend payment date or (ii) when cash payments are made on the Note or upon the date of maturity, lapse or other disposition of the Note by you, or possibly upon certain other events. Depending on the circumstances, the applicable withholding agent may withhold the required amounts from coupon or other payments on the Note, from proceeds of the retirement or other disposition of the Note, or from your other cash or property held by the withholding agent.

The dividend equivalent amount will include the amount of any actual or, under certain circumstances, estimated dividend. If the dividend equivalent amount is based on the actual dividend, it will be equal to the product of: (i) in the case of a “simple” contract, the per-share dividend amount, the number of shares of an Underlying Security and the delta; or (ii) in the case of a “complex” contract, the per-share dividend amount and the initial hedge. The dividend equivalent amount for Specified ELIs issued prior to 2021 that have a “delta” of one will be calculated in the same manner as (i) above, using a “delta” of one. The per-share dividend amount will be the actual dividend (including any special dividends) paid with respect to a share of the Underlying Security. If the dividend

IS-47

equivalent amount is based on an estimated dividend, the pricing supplement will generally state the estimated amounts.

Depending on the terms of a Note and whether or not it is issued prior to 2021, the pricing supplement may contain additional information relevant to Section 871(m), such as whether the Note references a Qualified Index or Qualified Index Security; whether it is a “simple” contract; the “delta” and the number of shares multiplied by delta (for a simple contract); and whether the “substantial equivalence test” is met and the initial hedge (for a complex contract).

Prospective purchasers of the Notes should consult their tax advisers regarding the potential application of Section 871(m) to a particular Note. Our determination is binding on Non-U.S. Holders, but it is not binding on the IRS. The Section 871(m) regulations require complex calculations to be made with respect to Notes linked to U.S. equities and their application to a specific issue of Notes may be uncertain. Accordingly, even if we determine that certain Notes are not Specified ELIs, the IRS could challenge our determination and assert that withholding is required in respect of those Notes. Moreover, your consequences under Section 871(m) may depend on your particular circumstances. For example, if you enter into other transactions relating to an Underlying Security, you could be subject to withholding tax or income tax liability under Section 871(m) even if the Notes are not Specified ELIs subject to Section 871(m) as a general matter. Non-U.S. Holders should consult their tax advisers regarding the application of Section 871(m) in their particular circumstances.

### ***U.S. Federal Estate Tax***

If you are an individual Non-U.S. Holder or an entity the property of which is potentially includible in such an individual’s gross estate for U.S. federal estate tax purposes (for example, a trust funded by such an individual and with respect to which the individual has retained certain interests or powers), you should note that, absent an applicable treaty exemption, a Note that is treated as a debt obligation for U.S. federal estate tax purposes generally will be treated as U.S.-situs property subject to U.S. federal estate tax if payments on the Note, if received by the decedent at the time of death, would have been subject to U.S. federal withholding or income tax (even if the IRS Form W-8 certification requirement described above were satisfied and not taking into account the elimination of such U.S. federal withholding tax due to the application of an income tax treaty). If you are such an individual or entity, you should consult your tax adviser regarding the U.S. federal estate tax consequences of an investment in the Notes.

### **Information Reporting and Backup Withholding**

Payments on the Notes, and the proceeds of a sale, exchange or other disposition of the Notes, may be subject to information reporting and, if you fail to provide certain identifying information (such as an accurate taxpayer identification number if you are a U.S. Holder) or meet certain other conditions, may also be subject to backup withholding at the rate specified in the Code. If you are a Non-U.S. Holder that provides an appropriate IRS Form W-8, you will generally establish an exemption from backup withholding. Amounts withheld under the backup withholding rules are not additional taxes and may be refunded or credited against your U.S. federal income tax

liability, provided the relevant information is timely furnished to the IRS.

**Assumption by Citigroup Inc.**

As provided in the accompanying prospectus, our obligations under the Notes may be assumed by Citigroup Inc. We intend that Citigroup Inc. will assume our obligations under the Notes pursuant to this provision only in circumstances in which we expect to treat such an assumption as not giving rise to a “significant modification” of the Notes and have been advised by our counsel that such treatment is reasonable under the circumstances and the law in effect at the time of such assumption. However, in light of the lack of clear authority regarding the treatment of such an assumption, there may be uncertainty regarding the correctness of this treatment. As a result, it is possible that the IRS may treat an assumption of the Notes as a significant modification, in which case the timing and character of income recognized with respect to the Notes, including the withholding tax consequences to a Non-U.S. Holder, after the assumption could be affected significantly, depending on circumstances at the time of the assumption. Moreover, a U.S. Holder would generally be required to recognize gain (if any) with respect to the Notes at the time of the assumption in the same manner as described above in respect of a sale or other taxable disposition of the Notes. You should consult your tax adviser regarding the consequences of an assumption of the Notes.

IS-48

## FATCA

Legislation commonly referred to as “FATCA” generally imposes a withholding tax of 30% on payments to certain non-U.S. entities (including financial intermediaries) with respect to certain financial instruments, unless various U.S. information reporting and due diligence requirements (that are in addition to, and potentially significantly more onerous than, the requirement to deliver an IRS Form W-8) have been satisfied. An intergovernmental agreement between the United States and the non-U.S. entity’s jurisdiction may modify these requirements. This legislation generally applies to interest on the Notes and certain dividend equivalents (as defined above) under Section 871(m). While existing Treasury regulations would also require withholding on payments of gross proceeds of the disposition (including upon retirement) of the Notes, the U.S. Treasury Department has indicated in subsequent proposed regulations its intent to eliminate this requirement. The U.S. Treasury Department has stated that taxpayers may rely on these proposed regulations pending their finalization. If withholding applies to the Notes, we will not be required to pay any additional amounts with respect to amounts withheld. If you are a Non-U.S. Holder, or a U.S. Holder holding Notes through a non-U.S. intermediary, you should consult your tax adviser regarding the potential application of FATCA to the Notes, including the availability of certain refunds or credits.

IS-49



## DESCRIPTIONS OF THE CONSTITUENTS

We have derived all information contained in this Index Supplement regarding the S&P 500 Futures Excess Return Index (the “U.S. Equity Futures Constituent”) and the S&P 10-Year U.S. Treasury Note Futures Index (the “U.S. Treasury Futures Constituent”), including, in each case, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not independently verified such information. Such information reflects the policies of, and is subject to change by, S&P Dow Jones Indices LLC (“S&P Dow Jones”), a joint venture company owned by The McGraw-Hill Companies, Inc., CME Group Inc. and Dow Jones & Company, Inc. The U.S. Equity Futures Constituent and the U.S. Treasury Futures Constituent were developed by Standard & Poor’s Financial Services LLC (“S&P”) and are calculated, maintained and published by S&P Dow Jones. S&P Dow Jones has no obligation to continue to publish, and may discontinue the publication of, either the U.S. Equity Futures Constituent or the U.S. Treasury Futures Constituent.

### Futures Contracts Generally

Both Constituents are futures-based indices. This section provides a brief description of futures contracts generally.

Generally speaking, a futures contract is an agreement to buy or sell an underlying asset on a future expiration date at a price that is agreed upon today. If the underlying asset is worth more on the expiration date than the price specified in the futures contract, then the purchaser of that contract will achieve a gain on that contract, and if it is worth less, the purchaser will incur a loss.

For example, suppose that a futures contract entered into in January calls for the purchaser to buy the underlying asset in April at a price of \$1,000. If the underlying asset is worth \$1,200 in April, then upon settlement of the futures contract in April the purchaser will buy for \$1,000 an underlying asset worth \$1,200, achieving a \$200 gain. Conversely, if the underlying asset is worth \$800 in April, then upon settlement of the futures contract in April the purchaser will buy for \$1,000 an underlying asset worth only \$800, incurring a \$200 loss.

The gain or loss to the purchaser of this futures contract is different from the gain or loss that could have been achieved by the direct purchase of the underlying asset in January and the sale of that underlying asset in April. This is because a futures contract is a “leveraged” way to invest in the underlying asset. In other words, purchasing a futures contract is similar to borrowing money to buy the underlying asset, in that (i) it enables an investor to gain exposure to the underlying asset without having to pay the full cost of it up front and (ii) it entails a financing cost.

This financing cost is implicit in the difference between the spot price of the underlying asset and the futures price. A “futures price” is the price at which market participants may agree today to buy or sell the underlying asset in the future, and the “spot price” is the current price of the underlying asset for immediate delivery. The futures price is determined

by market supply and demand and is independent of the spot price, but it is nevertheless generally expected that the futures price will be related to the spot price in a way that reflects a financing cost (because if it did not do so there would be an opportunity for traders to make sure profits, known as “arbitrage”). For example, if January’s futures price is \$1,000, January’s spot price may be \$975. If the underlying asset is worth \$1,200 in April, the gain on the futures contract would be \$200 (\$1,200 *minus* \$1,000), while the gain on a direct investment made at the January spot price would have been \$225 (\$1,200 *minus* \$975). The lower return on the futures contract as compared to the direct investment reflects this implicit financing cost. Because of this financing cost, it is possible for a purchaser to incur a loss on a futures contract even if the spot price of the underlying asset increases over the term of the futures contract. The amount of this financing cost is expected to increase as general market interest rates increase.

Futures contracts are standardized instruments that are traded on an exchange. On each trading day, the exchange determines a settlement price (which may also be referred to as a closing price) for that futures contract based on the futures prices at which market participants entered into that futures contract on that day. Open positions in futures contracts are “marked to market” and margin is required to be posted on each trading day. This means that, on each trading day, the current settlement price for a futures contract is compared to the futures price at which the purchaser entered into that futures contract. If the current settlement price has decreased from the initial futures price, then the purchaser will be required to deposit the decrease in value of that futures contract into an account. Conversely, if the current settlement price has increased, the purchaser will receive that cash value in its

IS-50

account. Accordingly, gains or losses on a futures contract are effectively realized on a daily basis up until the point when the position in that futures contract is closed out.

Because futures contracts have expiration dates, one futures contract must be rolled into another if there is a desire to maintain a continuous position in futures contracts on (rather than take delivery of) a particular underlying asset. This is typically achieved by closing out the position in the existing futures contract as its expiration date approaches and simultaneously entering into a new futures contract (at a new futures price based on the futures price then prevailing) with a later expiration date.

### **S&P 500 Futures Excess Return Index**

The U.S. Equity Futures Constituent launch date was August 2, 2010 and is reported by Bloomberg L.P. under the ticker symbol “SPXFP.”

#### *Index Calculation*

The U.S. Equity Futures Constituent tracks the performance of a hypothetical position, rolled quarterly, in the nearest-to-expiration E-mini S&P 500 futures contract. Constructed from E-mini S&P 500 future contracts, the U.S. Equity Futures Constituent includes provisions for the replacement of the current E-mini S&P 500 future contract in the U.S. Equity Futures Constituent as such futures contract approaches expiration (also referred to as “rolling”). This replacement occurs over a one-day rolling period every quarter, which is five days prior to the last trade date of the futures contract.

The U.S. Equity Futures Constituent is calculated from the price change of the underlying E-mini S&P 500 futures contract. On any trading date,  $t$ , the level of the U.S. Equity Futures Constituent is calculated as follows:

$$\text{Index}_t = \text{Index}_{t-1} * (1 + \text{CDR}_{t,t-1})$$

Where:

$\text{Index}_t$  =The level of the U.S. Equity Futures Constituent on the current day,  $t$

$Index_{t-1}$  = The level of the U.S. Equity Futures Constituent on the preceding day on which the U.S. Equity Futures Constituent was calculated,  $t-1$

The Contract Daily Return from day  $t-1$  to day  $t$ , defined as:

$CDR_{t,t-1}$  =

$$\frac{DCRP_t}{DCRP_{t-1}} - 1$$

$DCRP$  = The daily contract reference price of the futures contract, which is the official closing price, as designated by the exchange.

Market disruptions are situations where the exchange has failed to open so that no trading is possible due to unforeseen events, such as computer or electric power failures, weather conditions or other events. If any such event happens on the roll date, the roll will take place on the next business day on which no market disruptions exist.

The U.S. Equity Futures Constituent is an excess return index, which in this context means that its performance will be based solely on changes in the settlement price of its underlying futures contract. An excess return index is distinct from a total return index, which, in addition to changes in the settlement price of the underlying futures contract, would reflect interest on a hypothetical cash position collateralizing that futures contract.

IS-51

*E-mini S&P 500 futures contracts*

E-mini S&P 500 futures contracts were introduced in 1997 and are traded on the Chicago Mercantile Exchange under the ticker symbol “ES.” The Chicago Mercantile Exchange trades E-mini S&P 500 futures contracts with expiration dates in March, June, September and December of each year.

E-mini S&P 500 futures contracts differ from the futures contracts described above under “—Futures Contracts Generally” in that the E-mini S&P 500 futures contracts are cash settled only, meaning that the 500 stocks composing the S&P 500 Index are not actually delivered upon settlement of the futures contract. Therefore, the E-mini S&P 500 futures contracts are not contracts to actually buy and sell the stocks in the S&P 500 Index. In all other relevant respects, however – including daily “mark to market” and realization of gains or losses based on the difference between the current settlement price and the initial futures price – the E-mini S&P 500 futures contracts are similar to those described above under “—Futures Contracts Generally.”

*S&P 500<sup>®</sup> Index*

The U.S. Equity Futures Constituent tracks futures contracts on the S&P 500<sup>®</sup> Index. The S&P 500<sup>®</sup> Index is reported by Bloomberg L.P. under the ticker symbol “SPX.”

The S&P 500<sup>®</sup> Index is intended to provide a performance benchmark for the large capitalization segment of the U.S. equity markets. The calculation of the level of the S&P 500<sup>®</sup> Index on each day (its “spot level” for that day, and discussed below in further detail) is based on the relative value of the aggregate Market Value (as defined below) of the common stocks of 500 companies (the “S&P Component Stocks”) as of a particular time as compared to the aggregate average Market Value of the common stocks of 500 similar companies during the base period of the years 1941 through 1943. Historically, the “Market Value” of any S&P Component Stock was calculated as the product of the market price per share and the number of the then-outstanding shares of such S&P Component Stock. As discussed below, on March 21, 2005, S&P Dow Jones began to use a new methodology to calculate the Market Value of the S&P Component Stocks and on September 16, 2005, S&P Dow Jones completed its transition to the new calculation methodology. Although the S&P 500<sup>®</sup> Index contains 500 companies, at any one time it may contain greater than 500 trading lines since some companies may be represented by multiple share class lines in the index. The 500 companies are not the 500 largest companies listed on the New York Stock Exchange (the “NYSE”) and not all 500 companies are listed on such exchange. S&P Dow Jones may from time to time, in its sole discretion, add companies to, or delete companies from, the S&P 500<sup>®</sup> Index to achieve the objectives stated above. Relevant criteria employed by S&P Dow Jones include the viability of the particular company, the extent to which that company represents the industry group to which it is assigned, the extent to which the company’s common stock is widely held and the Market Value and trading activity of the common stock of that company.

Effective September 2015, each share class line is subject to public float and liquidity criteria individually, but a company’s total market capitalization is used to evaluate each share class line. This may result in one listed share class

line of a company being included in the S&P 500<sup>®</sup> Index while a second listed share class line of the same company is excluded. Unlisted share class lines are not combined with any listed share class lines, but these unlisted class lines are included when computing company total market capitalization. S&P Dow Jones chooses companies for inclusion in the S&P 500<sup>®</sup> Index with the objective of achieving a distribution by broad industry groupings that approximates the distribution of these groupings in the common stock population of the U.S. equity market.

The S&P 500<sup>®</sup> Index is a float-adjusted index. Under float adjustment, the share counts used in calculating the S&P 500<sup>®</sup> Index reflect only those shares that are available to investors, not all of a company's outstanding shares. Float adjustment excludes shares that are closely held by control groups, other publicly traded companies or government agencies.

Beginning September 21, 2012, all share holdings with a position greater than 5% of a stock's outstanding shares, other than holdings by "block owners," are removed from the float for purposes of calculating the S&P 500 Index. Generally, these "control holders" include officers and directors, private equity, venture capital and special equity firms, other publicly traded companies that hold shares for control, strategic partners, holders of restricted shares, ESOPs, employee and family trusts, foundations associated with the company, holders of unlisted share classes of stock or government entities at all levels (other than government retirement/pension funds) and any individual person who controls a 5% or greater stake in a company as reported in regulatory filings. Holdings by

IS-52

block owners, such as depository banks, pension funds, mutual funds and ETF providers, 401(k) plans of the company, government retirement/pension funds, investment funds of insurance companies, asset managers and investment funds, independent foundations and savings and investment plans, are ordinarily considered to be part of the float.

Prior to September 21, 2012, S&P Dow Jones defined three groups of shareholders whose holdings were subject to float adjustment if the relevant group's holdings exceeded 10% of the outstanding shares:

- holdings by other publicly traded corporations, venture capital firms, private equity firms, strategic partners or leveraged buyout groups;

- holdings by government entities, including all levels of government in the United States or foreign countries; and

- holdings by current or former officers and directors of the company, founders of the company or family trusts of officers, directors or founders, as well as holdings of trusts, foundations, pension funds, employee stock ownership plans or other investment vehicles associated with and controlled by the company.

Under these previous float-adjustment rules, in cases where holdings in a group exceeded 10% of the outstanding shares of a company, the holdings of that group were excluded from the float-adjusted count of shares to be used in the S&P 500® Index calculation. Mutual funds, investment advisory firms, pension funds or foundations not associated with the company and investment funds in insurance companies and shares that trust beneficiaries may buy or sell without difficulty or significant additional expense beyond typical brokerage fees were part of the float.

Treasury stock, stock options, equity participation units, warrants, preferred stock, convertible stock and rights are generally not part of the float. However, shares held in a trust to allow investors in countries outside the country of domicile (e.g., ADRs, CDIs and Canadian exchangeable shares) are normally part of the float unless those shares form a control block. If a company has more than one class of stock outstanding, shares in an unlisted or non-traded class are treated as a control block.

For each stock, an investable weight factor (“IWF”) is calculated by dividing the available float shares by the total shares outstanding. Beginning September 21, 2012, available float shares are defined as total shares outstanding less shares held by control holders. Prior to September 21, 2012, available float shares were defined as the total shares outstanding less shares held in one or more of the three groups listed above where the group holdings exceeded 10% of the outstanding shares. The S&P 500® Index is calculated by dividing the sum of the IWF multiplied by both the price and the total shares outstanding for each stock by the Index Divisor.

As of the date of this Index Supplement, the S&P 500® Index is calculated using a base-weighted aggregate methodology: the level of the S&P 500® Index reflects the total Market Value of all 500 S&P Component Stocks

relative to the S&P 500<sup>®</sup> Index's base period of 1941–43 (the "Base Period").

An indexed number is used to represent the results of this calculation in order to make the value easier to work with and track over time.

The actual total Market Value of the S&P Component Stocks during the Base Period has been set equal to an indexed value of 10. This is often indicated by the notation 1941–43=10. In practice, the daily calculation of the S&P 500<sup>®</sup> Index is computed by dividing the total Market Value of the S&P Component Stocks by a number called the Index Divisor. By itself, the Index Divisor is an arbitrary number. However, in the context of the calculation of the S&P 500<sup>®</sup> Index, it is the only link to the original Base Period level of the S&P 500<sup>®</sup> Index. The Index Divisor keeps the S&P 500<sup>®</sup> Index comparable over time and is the manipulation point for all adjustments to the S&P 500<sup>®</sup> Index ("Index Maintenance").

Index Maintenance includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends and stock price adjustments due to company restructurings or non-zero price spin-offs.

IS-53



To prevent the level of the S&P 500<sup>®</sup> Index from changing due to corporate actions, all corporate actions which affect the total Market Value of the S&P 500<sup>®</sup> Index require an Index Divisor adjustment. By adjusting the Index Divisor for the change in total Market Value, the level of the S&P 500<sup>®</sup> Index remains constant. This helps maintain the level of the S&P 500<sup>®</sup> Index as an accurate barometer of stock market performance and ensures that the movement of the S&P 500<sup>®</sup> Index does not reflect the corporate actions of individual companies in the S&P 500<sup>®</sup> Index. All Index Divisor adjustments are made after the close of trading and after the calculation of the closing level of the S&P 500<sup>®</sup> Index. Some corporate actions, such as stock splits and stock dividends, require simple changes in the common shares outstanding and the stock prices of the companies in the S&P 500<sup>®</sup> Index and do not require Index Divisor adjustments.

The table below summarizes the types of Index Maintenance adjustments and indicates whether or not an Index Divisor adjustment is required.

<b>Type of Corporate Action</b>	<b>Comment</b>	<b>Divisor Adjustment</b>
Company Added/ Deleted	Net change in market value determines divisor adjustment.	Yes
Change in Shares Outstanding	Any combination of secondary issuance, share repurchase or buy back – share counts revised to reflect change.	Yes
Stock Split	Share count revised to reflect new count. Divisor adjustment is not required since the share count and price changes are offsetting.	No
Spin-off	If the spun-off company is not being added to the index, the divisor adjustment reflects the decline in index market value ( <i>i.e.</i> , the value of the spun-off unit).	Yes
Spin-off	Spun-off company added to the index, no company removed from the index.	No
Spin-off	Spun-off company added to the index, another company removed to keep number of names fixed. Divisor adjustment reflects deletion.	Yes
Change in Investable Weight Factor (IWF)	Increasing (decreasing) the IWF increases (decreases) the total market value of the index. The divisor change reflects the change in market value caused by the change to an IWF.	Yes
Special Dividends	When a company pays a special dividend the share price is assumed to drop by the amount of the dividend; the divisor adjustment reflects this drop in index market value.	Yes
Rights Offering	Each shareholder receives the right to buy a proportional number of additional shares at a set (often discounted) price. The calculation assumes that the offering is fully subscribed. Divisor adjustment reflects increase in market cap measured as the shares issued multiplied by the price paid.	Yes

Stock splits and stock dividends do not affect the Index Divisor, because following a split or dividend, both the stock price and number of shares outstanding are adjusted by S&P Dow Jones so that there is no change in the Market Value of the S&P Component Stock. All stock split and dividend adjustments are made after the close of trading on the day before the ex-date.

Each of the corporate events exemplified in the table requiring an adjustment to the Index Divisor has the effect of altering the Market Value of the S&P Component Stock and consequently of altering the aggregate Market Value of the S&P Component Stocks (the “Post-Event Aggregate Market Value”). In order that the level of the S&P 500 Index (the “Pre-Event Index Value”) not be affected by the altered Market Value (whether increase or decrease) of the affected Component Stock, a new Index Divisor (“New Divisor”) is derived as follows:

IS-54

$$\frac{\text{Post-Event Aggregate Market Value}}{\text{New Divisor}} = \text{Pre-Event Index Value}$$

$$\text{New Divisor} = \frac{\text{Post-Event Aggregate Market Value}}{\text{Pre-Event Index Value}}$$

A large part of the Index Maintenance process involves tracking the changes in the number of shares outstanding of each of the S&P 500<sup>®</sup> Index companies. Four times a year, on a Friday close to the end of each calendar quarter, the share totals of companies in the S&P 500<sup>®</sup> Index are updated as required by any changes in the number of shares outstanding. After the totals are updated, the Index Divisor is adjusted to compensate for the net change in the total Market Value of the S&P 500<sup>®</sup> Index. In addition, any changes over 5% in the current common shares outstanding for the S&P 500<sup>®</sup> Index companies are carefully reviewed on a weekly basis, and when appropriate, an immediate adjustment is made to the Index Divisor. For weekly share reviews involving companies with multiple share class lines, the 5% share change threshold is based on each individual share class line rather than total company shares.

### **S&P 10-Year U.S. Treasury Note Futures Excess Return Index**

The U.S. Treasury Futures Constituent launch date was March 28, 2011 and is reported by Bloomberg L.P. under the ticker symbol “SPUSTTP.”

#### *Index Calculation*

The U.S. Treasury Futures Constituent track the performance of a hypothetical position, rolled quarterly, in the nearest-to-expiration 10-Year U.S. Treasury Notes futures contract. Constructed from 10-Year U.S. Treasury Notes future contracts, the U.S. Treasury Futures Constituent includes provisions for the replacement of the current 10-Year U.S. Treasury Notes future contract in the U.S. Treasury Futures Constituent as such futures contract approaches expiration (also referred to as “rolling”). This replacement occurs over a one-day rolling period every quarter, on the close of the day prior to the First Position Date (as published by the CME Group).

The U.S. Treasury Futures Constituent is calculated from the price change of the underlying 10-Year U.S. Treasury Notes future contract. On any trading date,  $t$ , the level of the U.S. Treasury Futures Constituent is calculated as follows:

$$\text{Index}_t = \text{Index}_{t-1} * (1 + \text{IndexExcessReturn}_t)$$

Where:

$\text{IndexExcessReturn}_t$  = The excess return from holding the underlying futures contract.

$\text{Index}_t$  = The level of the U.S. Treasury Futures Constituent on the current day,  $t$

$\text{Index}_{t-1}$  = The level of the U.S. Treasury Futures Constituent on the preceding day on which the U.S. Treasury Futures Constituent was calculated,  $t-1$ .

Market disruptions are situations where the exchange has failed to open so that no trading is possible due to unforeseen events, such as computer or electric power failures, weather conditions or other events. If any such event happens on the roll date, the roll will take place on the next business day on which no market disruptions exist.

The U.S. Treasury Futures Constituent is an excess return index, which in this context means that its performance will be based solely on changes in the settlement price of its underlying futures contract. An excess return index is distinct from a total return index, which, in addition to changes in the settlement price of the underlying futures contract, would reflect interest on a hypothetical cash position collateralizing that futures contract.

IS-55

*10-Year U.S. Treasury Notes Futures*

10-Year U.S. Treasury Notes Futures are traded on the Chicago Board of Trade ("CBOT") under the ticker symbol "TY."

10-Year U.S. Treasury Notes Futures are legally binding agreements to buy or sell 10-Year U.S. Treasury Notes at a fixed price for physical settlement on a future date. 10-Year U.S. Treasury Notes futures contracts permit the delivery of 10-Year U.S. Treasury Notes, defined for this purpose as U.S. Treasury notes with a remaining term to maturity of at least 6.5 years and an original term to maturity of no more than 10 years, in satisfaction of a maturing futures contract. 10-Year U.S. Treasury Notes Futures have expiration dates in March, June, September, and December of each year.

License Agreement

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IS-56

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IS-57

**ANNEX A**

**INDEX RULES**

IS-58



Citi Dynamic Asset Selector 5 Excess Return Index  
Index Conditions  
Citi Investment Strategies

30 September 2016

Part A: Introduction

This document constitutes the “**Index Conditions**” in respect of the Citi Dynamic Asset Selector 5 Excess Return Index (the “**Index**”). Capitalised terms are defined in Part J (*Definitions*).

These Index Conditions are made available by Citigroup Global Markets Limited in its capacity as the Index Administrator.

Full information in respect of any Index Linked Product is only available on the basis of a combination of these Index Conditions and the confirmation, prospectus or offering document (however described) in respect of such Index Linked Product. Particular attention is drawn to the important risk factors and disclaimers contained in these Index Conditions, and investors should be aware of the consequences set out in such confirmation, prospectus or offering document of such Index Linked Product of any discontinuation of the Index.

No use of the Index or these Index Conditions is permitted unless such use is authorised, whether: (1) through buying, or otherwise entering into, an Index Linked Product from or with the Index Administrator or the Index Calculation Agent or one of their respective Affiliates; or (2) under the terms of a written licence granted by the Index Administrator.

These Index Conditions may be amended from time to time in the circumstances described in Part L (*Miscellaneous*). Copies of these Index Conditions are available from the Index Administrator.

These Index Conditions comprise the following Parts.

Part A Introduction

Part B Key information

Part C Overview of the Index

Part D Calculation of the Index Level

Part E Data

Part F Valuation of Constituents

Part G Adjustment of dates

Part H Adjustments, disruption and cancellation

Part I Provisions relating to Constituents

Part J Definitions

Part K Risk factors

Part L Miscellaneous

Part M Notices

Page 2 of 49

Part B: Key information

**Index:** Citi Dynamic Asset Selector 5 Excess Return Index. The Index is a notional rules-based proprietary index developed by the Index Administrator.

**Summary of strategy:** The Index is a dynamically rebalanced, volatility-targeted index that provides exposure to the performance of a Core Index which represents notional weighted long (or zero<sup>(1)</sup>) positions in:

(a) the S&P 500 Futures Excess Return Index (being the “**Equity Constituent**”), a rolling futures index that provides exposure to U.S. large-cap equities, and

(b) the S&P 10Y US T-Note Futures Excess Return Index (being the “**Treasuries Constituent**”), a rolling futures index that provides exposure to U.S. Treasury notes with a remaining maturity of at least 6.5 years and an original maturity not exceeding 10 years (“**10-Year U.S. Treasury Notes**”),

depending on the daily observation of the output of an algorithmic indicator or “signal”, as described below.

Each of the Equity Constituent and the Treasuries Constituent is further described in Part E (*Data*) below.

***Signal***

The overall signal is made up of two signals: a Trend Signal and a Volatility Signal, which respectively aim to model the recent directional performance and realized volatility of the Equity Constituent over a specified period.

On any Index Business Day, the output of the signal determines which one of three possible market regimes is applicable, broadly as follows:

(a) Market Regime 1: upward trend and relatively low volatility indicated;

(b) Market Regime 2: upward trend and relatively high volatility indicated or downward trend and relatively low volatility indicated; and

(c) Market Regime 3: downward trend and relatively high volatility indicated.

***Weights and rebalancing***

The Constituents of the Index are weighted according to the applicable Regime, as follows:

(a) Market Regime 1: Index is two-thirds exposed to Equity Constituent and one-third exposed to the Treasuries

<sup>1</sup> The weighted position may be zero in respect of the Equity Constituent, but never in respect of the Treasuries Constituent.

Constituent (the “**Equity-Focused Portfolio**”);

(b) Market Regime 2: Index is one-third exposed to Equity Constituent and two-thirds exposed to the Treasuries Constituent (the “**Intermediate Portfolio**”); and

(c) Market Regime 3: Index is wholly exposed to the Treasuries Constituent only (and has zero exposure to the Equity Constituent) (the “**Treasury Portfolio**”),

each of the Equity-Focused Portfolio, the Intermediate Portfolio and the Treasury Portfolio, being a hypothetical investment “**Portfolio**” tracked by the Core Index (also referred to in these Index Conditions as the Selected Portfolio).

A rebalancing of the Index is triggered whenever the output of the signal determines a change in market regime and, on such rebalancing, the Percentage Weights of each of the Equity Constituent and the Treasuries Constituent in the Core Index are reset to the pre-determined Weights of the relevant Portfolio corresponding to the market regime prevailing at that time, as described above.

Under certain market conditions, the Percentage Weight attributed to the Equity Constituent is zero, meaning that the Core Index is entirely constituted by the Treasuries Constituent. In all other market regimes, the Core Index is exposed in part to each Constituent.

### **Volatility targeting**

The Index features a volatility-targeting mechanism the aim of which is to seek to maintain the annualized volatility of the returns of the Index as close as practicable to the Volatility Target of 5 per cent. per annum. The mechanism involves the recalculation as at each Index Business Day of a level of Exposure of the Index Level (specifically, the Gross Index Level) to the Core Index Level. That Exposure is a function of recent realized volatility of the returns of the Current Core Index: Realized Volatility of less than 5 per cent. will contribute to an increase in the Exposure, whereas Realized Volatility of more than 5 per cent. will contribute to a decrease in the Exposure. A volatility buffer of 10 per cent. is also applied such that there is no change to the Exposure if, once recalculated, the Exposure would otherwise change by no more than 10 per cent. The Exposure calculation does not provide leveraged exposure to the Core Index (or to the Constituents).

Citigroup Global Markets Limited.

Index  
Administrator:

Index  
Calculation  
Agent: From the Index Start Date to 26 August 2016 (the “**ICA Replacement Date**”), the Index Administrator, and from the ICA Replacement Date onwards, S&P Dow Jones Indices LLC and/or its subsidiaries, or any successor to such person, or any alternative calculation agent appointed by the Index Administrator.

Index Base  
Currency: United States dollars (“**USD**”).

Index Launch  
Date: 13 June 2016.

Page 4 of 49

Index Start Date: 12 January 1998.

Index Start Level: 100.

Core Index Start Date: 9 December 1997.

Core Index Start Level: 100.

Index Fees and Costs: A Notional Index Fee of 0.85 per cent. p.a. is deducted in the daily calculation of the Index Level.

Frequency of calculation of the Index Level: Daily, on each Index Business Day.

Subject to the occurrence of market disruption, holidays, adjustment events and/or extraordinary events, rebalancing occurs on each Rebalancing Date, being the Index Business Day immediately following a Selection Date (which arises when a change in market regime is signalled).

Frequency of rebalancing: Rebalancing is not, therefore, necessarily regular (for example, daily or monthly), but will instead depend upon market conditions, as described above. It is possible that no rebalancing occurs for significant periods of time, where market conditions are such that no change in market regime is signalled, or that rebalancings occur frequently, where market conditions are such that frequent changes in market regime are signalled.

The occurrence of adjustment events and/or extraordinary events may result in the extraordinary rebalancing of the Index.

Index Ticker: Bloomberg Page: CIISDA5N <Index>.

*The Index was launched by the Index Administrator on the Index Launch Date. The Index has been calculated by the Index Calculation Agent for the period from the Index Start Date. The past performance of the Index prior to the Index Launch Date has been derived from a back-testing simulation by applying the Index methodology to published historical levels of the Index constituents. Back-tested performance is provided for illustrative purposes only and should not be regarded as an indication of future performance. The back-testing simulation assumed that there were no market disruption events and no extraordinary events affecting Index constituents. A simulation based on different assumptions may produce different results. Any Index Linked Product may bear additional fees which will reduce the overall returns of such Index Linked Product as compared with the past performance of the Index.*





Part C: Overview of the Index

## 1. INTRODUCTION

The brief description set out in this Part C (*Overview of the Index*) is a summary only of these Index Conditions, of which this Part C (*Overview of the Index*) is a part. These Index Conditions as a whole govern the Index, the calculation of the Index Level, and the determinations made in connection with the maintenance of the Index. In the case of any inconsistency between this brief description in this Part C (*Overview of the Index*) and the remainder of these Index Conditions, the remainder of these Index Conditions shall prevail.

The Index is a dynamically rebalanced, volatility-targeted index that provides exposure to the performance of a Core Index which represents notional weighted long (or zero<sup>[2]</sup>) positions in:

(a) the S&P 500 Futures Excess Return Index (being the Equity Constituent); and

(b) the S&P 10Y US T-Note Futures Excess Return Index (being the Treasuries Constituent),

depending on the daily observation of output of an algorithmic indicator or “signal”, as described below.

The rebalancing and volatility-targeting methodologies are further described in paragraphs 2 and 3, respectively, of this Part C (*Overview of the Index*).

The Index can be described as providing exposure to notional positions in the Constituents, because there is no actual portfolio of assets to which any person is entitled or in which any person has any ownership interest. Instead, the Index Level is calculated (amongst other things) with reference to the level of the Constituents and their Weights in the Core Index. The Index Level therefore is a function of (amongst other things) the daily change in value of the Constituents from Index Business Day to Index Business Day.

## 2. REBALANCING

### 2.1 Change in Market Regime

Subject to the occurrence or existence of a Disrupted Day, Adjustment Event, or Regulatory Event, a rebalancing occurs whenever the output of an algorithmic indicator (or “signal”) points to a change in Market Regime from one Index Business Day to the next Index Business Day. The signal is based on the joint observation of a Trend Signal and a Volatility Signal:

(a) the Trend Signal is a value intended to represent the underlying direction and momentum (whether negative or positive) of the performance of the Equity Constituent over an observation window of 21 Index Business Days; and

(b) the Volatility Signal aims to model the realized volatility of the Equity Constituent over an observation window of 63 Index Business Days.

The Index Calculation Agent calculates each of Trend Signal and Volatility Signal on each Index Business Day, in order to determine the applicable Market Regime.

## **2.2 Determination of Market Regime**

The Index Calculation Agent shall determine the Market Regime (i.e. Market Regime 1, 2 or 3) on each Index Business Day. This involves two steps.

<sup>2</sup> The weighted position in respect of the Equity Constituent may be zero, although never in respect of the Treasuries Constituent.

First, if the Trend Signal on that Index Business Day is determined by the Index Calculation Agent not to be statistically different (based upon a statistical test) from that of the immediately preceding Index Business Day, the applicable Market Regime is the same as for the immediately preceding Index Business Day (i.e. there is no change in Market Regime).

Second, if the Trend Signal on that Index Business Day is determined by the Index Calculation Agent to be statistically different (again, based upon a statistical test) from that of the immediately preceding Index Business Day, the Index Calculation Agent determines whether Market Regime 1, 2 or 3 applies, as follows:

(a) if the Trend Signal is positive (signalling an upwards trend) and the Volatility Signal is below or equal to 15 per cent. (signalling relatively low volatility), Market Regime 1 applies;

(b) if the Trend Signal is negative (signalling a downwards trend) and the Volatility Signal is strictly above 15 per cent. (signalling relatively high volatility), Market Regime 3 applies; and

(c) otherwise, Market Regime 2 applies.

If there is no change in Market Regime by comparison with the immediately preceding Index Business Day, no Selection Date arises and, since no Rebalancing Date arises either, there is no rebalancing of the Index. If, instead, the Index Calculation Agent determines that there has been a change in Market Regime, that Index Business Day constitutes a Selection Date, and the Index Calculation Agent must, therefore, determine the Percentage Weights (from which the Weights are then determined) to be applied in the subsequent rebalancing of the Index.

### **2.3 Determination of Percentage Weight and Weight**

The difference between Weight and Percentage Weight can be understood as the difference between the notional investment in a Constituent in the Core Index (the Weight) and the proportion that each Constituent has in the overall level of the Core Index (the Percentage Weight).

The Percentage Weight is determined by the Index Calculation Agent as a function of the applicable Market Regime, as follows:

(a) in the case of Market Regime 1, the Equity Constituent is attributed a Percentage Weight of  $2/3$ , and the Treasuries Constituent a Percentage Weight of  $1/3$ ;

(b) in the case of Market Regime 2, the Equity Constituent is attributed a Percentage Weight of  $1/3$  and the Treasuries Constituent a Percentage Weight of  $2/3$ ; and

(c) in the case of Market Regime 3, the Equity Constituent is attributed a Percentage Weight of zero and the Treasuries Constituent a Percentage Weight of 1 (i.e. 100 per cent.).

From the determination of the applicable Percentage Weights in respect of a Selection Date, the Weights for the Rebalancing Date (being the Index Business Day immediately subsequent to the Selection Date, subject to adjustment in accordance with Part G (*Adjustment of dates*)) are determined by the Index Calculation Agent. The Index Calculation Agent will perform the calculations required to determine the Weights of each Constituent in the Core Index according to the methodology set out in Part D (*Calculation of the Index Level*). The Weight of each of the Equity Constituent and the Treasuries Constituent in the Core Index is thus rebalanced as of the relevant Rebalancing Date. Rebalancing is not, therefore, regular (for example, daily or monthly), but instead depends upon market conditions. This means that it is possible that no rebalancing occurs for significant periods of time, where there is no change in Market Regime, or that rebalancings occur frequently, where market conditions are such that frequent changes in market regime are signalled.

## 2.4 Core Index Level

The Core Index Level is calculated as at each Index Business Day by the Index Calculation Agent. For an Index Business Day that is a Rebalancing Date, the newly calculated Weights are used by the Index Calculation Agent in calculating the Core Index Level. The Core Index Level calculated in respect of the Rebalancing Date itself is not, however, affected by the new Weights.

For an Index Business Day that is not a Rebalancing Date, the previous Index Business Day's Weights are used. Subject to the occurrence of a Disrupted Day, Adjustment Event or Regulatory Event, the Weights of the Constituents will therefore remain constant between Rebalancing Dates.

## 3. VOLATILITY TARGETING

The Index features a volatility-targeting mechanism the aim of which is to seek to maintain the annualized volatility of the returns of the Index as close as practicable to the Volatility Target 5 per cent. per annum. Notwithstanding this volatility-targeting methodology, the actual volatility of the Index may be greater or less than the Volatility Target.

The mechanism involves the recalculation as at each Index Business Day of a level of Exposure of the Index (specifically, the Gross Index Level (i.e. the Index Level gross of the Notional Index Fee)) to the Core Index Level. The Exposure is determined by reference to the recent Realized Volatility of the returns of the Current Core Index. The Exposure is determined daily by the Index Calculation Agent, and so may (or may not) change on a daily basis (subject to a 10 per cent. buffer, as described below).

The level of Exposure of the Gross Index Level to the Core Index Level is determined in three stages.

(a) First, the Realized Volatility of the Current Core Index Level is calculated by reference to a window of observation of the Current Core Index Level of 21 Index Business Days (approximately one month) in order to determine an initial Exposure percentage by reference to the ratio of the Volatility Target to the Realized Volatility of the returns of the Current Core Index. Current Core Index volatility of less than 5 per cent. will therefore contribute to an increase in the Exposure applied to the Core Index and, conversely, Current Core Index volatility of more than 5 per cent. will contribute to a decrease in the Exposure applied to the Core Index. The Current Core Index Level is the sum of the Constituent Closing Levels on any given Index Business Day of each Constituent in the Core Index, weighted by the Weight of that Constituent in the Core Index on that Index Business Day.

(b) Second, that initial Exposure percentage is subjected to a floor of zero and a cap of 100 per cent. The Exposure of the Gross Index Level to the Core Index Level is, therefore, not leveraged.

(c) Third, a buffer of 10 per cent. is applied such that, if the Exposure of the Gross Index Level to the Core Index Level would not otherwise change by more than 10 per cent. as compared with the Exposure determined on the previous Index Business Day, there is no change to the Exposure level.

Given that this volatility targeting methodology is based on historical volatility calculated by reference to an observation window of the returns of the Current Core Index, as well as a buffer of 10 per cent., before the Exposure is adjusted, there may be a significant period of time before the Gross Index Level reduces Exposure to account for any increase in volatility. This may result in a lower Index Level than would be the case if the Exposure had been adjusted more quickly.

During periods when the Realized Volatility of the Current Core Index Level is higher than the Volatility Target, the volatility targeting methodology may lead the Index to underperform relative to the Core Index and/or compared with indices that do not use such a mechanism. Conversely, during periods when the returns of the Constituents are less volatile, the Realized Volatility of the Current Core Index Level may be considerably lower than the Volatility Target. This may limit the Index returns.

#### **4. INDEX ADMINISTRATOR AND INDEX CALCULATION AGENT**

The Index Administrator is Citigroup Global Markets Limited. As of the date of these Index Conditions, the Index Administrator has contracted with S&P Dow Jones Indices LLC and/or its subsidiaries as Index Calculation Agent to calculate and publish the Index from the ICA Replacement Date onwards, in accordance with these Index Conditions. From the Index Start Date to the ICA Replacement Date, the Index Administrator acts as Index Calculation Agent, calculating and publishing the Index, in accordance with these Index Conditions.

The Index Administrator may, in its sole discretion and without notice, appoint an alternative Index Calculation Agent at any time which may be a third party, the Index Administrator or one of its Affiliates.

The Index Administrator's determinations in respect of the Index shall be final. Please refer to Part L (*Miscellaneous*) for further information.

#### **5. CALCULATION OF THE INDEX**

Subject to the occurrence or existence of a Disrupted Day, the Index Level shall be calculated by the Index Calculation Agent as at the Index Valuation Time on each Index Business Day. The Index Level as at each Index Business Day shall be published on the Index Ticker, generally on the following Index Business Day. This should be considered the official source for the Index Level and a level obtained from any other source (electronic or otherwise) must be considered unofficial. The Index Level is the closing level of the Index for the relevant Index Business Day. The Index Calculation Agent may also, but is not obliged to, calculate the level of the Index in respect of any other valuation time on any Index Business Day or any other day with the consent of the Index Administrator. The detailed procedures for the calculation of the Index Level in respect of each Index Business Day are set out in Part D (*Calculation of the Index Level*) below.

#### **6. NOTIONAL FEES**

The Index Level includes a deduction for a Notional Index Fee of 0.85 per cent. p.a. which accrues and is deducted on each Index Business Day from the Gross Index Level.



Part D: Calculation of the Index Level

The calculations and determinations in this Part D (*Calculation of the Index Level*) are subject to the occurrence of, and adjustments made as a consequence of, Disrupted Days (as described in Part G (*Adjustment of dates*)) and Adjustment Events (as described in both Part H (*Adjustments, disruption and cancellation*) and Part I (*Provisions relating to Constituents*)).

**1. DAILY INDEX CALCULATION**

**1.1 Index Level**

The "**Index Level**" as at the Index Start Date shall be 100 (the Index Start Level).

The "**Index Level**" as at each Index Business Day  $t$  following the Index Start Date shall be an amount determined by the Index Calculation Agent as at the Index Valuation Time on such Index Business Day  $t$  in accordance with the following formula:

where:

$IL_t$  = Index Level as at Index Business Day  $t$

$IL_{t-1}$  = Index Level as at the Index Business Day immediately preceding Index Business Day  $t$

$GIL_t$  = Gross Index Level as at Index Business Day  $t$

$GIL_{t-1}$  = Gross Index Level as at the Index Business Day immediately preceding Index Business Day  $t$

Notional Index Fee = 0.85 per cent. p.a.

$dc(t-1,t)$  = The number of calendar days in the period from, and including the Index Business Day immediately preceding Index Business Day  $t$  to, but excluding, Index Business Day  $t$

and provided that if  $IL_t$  as calculated in accordance with such formula:

(a) would otherwise be a negative amount,  $IL_t$  shall be deemed to be zero as at that Index Business Day  $t$  (meaning that  $IL_t$  shall never be less than zero); and

(b) is equal to, or is deemed to be equal to, zero, the Index Level shall cease to be calculated and the Index Administrator shall discontinue and cancel the Index pursuant to paragraph 3 of Part H (*Adjustments, disruption and cancellation*).

## 1.2 Gross Index Level

The "**Gross Index Level**" as at the Index Start Date shall be 100 (the Index Start Level).

The "**Gross Index Level**" as at each Index Business Day  $t$  following the Index Start Date shall be an amount determined by the Index Calculation Agent as at the Index Valuation Time on such Index Business Day  $t$  in accordance with the following formula:

where:

$GIL_t$  = Gross Index Level as at Index Business Day  $t$

$GIL_{t-1}$  = Gross Index Level as at the Index Business Day immediately preceding Index Business Day  $t$

$CoreIndex_t$  = Core Index Level as at Index Business Day  $t$ , as determined in accordance with paragraph 1.3 (*Core Index Level*) of this Part D (*Calculation of the Index Level*)

$CoreIndex_{t-1}$  = Core Index Level as at the Index Business Day immediately preceding Index Business Day  $t$ , as determined in accordance with paragraph 1.3 (*Core Index Level*) of this Part D (*Calculation of the Index Level*)

$exp_{t-1}$  = Exposure of the Index Level to the Core Index Level as at the Index Business Day immediately preceding Index Business Day  $t$ , as determined in accordance with paragraph 1.4 (*Exposure and Realized Volatility of Current Core Index*) of this Part D (*Calculation of the Index Level*)

## 1.3 Core Index Level

The "**Core Index Level**" as at the Core Index Start Date shall be 100.

The "**Core Index Level**" as at each Index Business Day  $t$  falling after the Core Index Start Date shall be an amount determined by the Index Calculation Agent on such Index Business Day  $t$  in accordance with the following formula:

where:

$\text{CoreIndex}_t$  = Core Index Level as at Index Business Day t

$\text{Weight}_{i,t-1}$  = Weight of Constituent i in the Core Index as at the Index Business Day immediately preceding Index Business Day t, as determined in accordance with paragraph 1.7 (*Weight of Constituents of Core Index*) of this Part D (*Calculation of the Index Level*)

Page 11 of 49

$CCL_{i,t} = F$  Constituent Closing Level of Constituent  $i$  as at Index Business Day  $t$ , as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)

#### 1.4 Exposure and Realized Volatility of Current Core Index

The Exposure of the Gross Index Level to the Core Index Level is determined by reference to the short term Realized Volatility of the Current Core Index calculated over a window of observation of the Current Core Index Level of 21 Index Business Days. This means that the Realized Volatility is calculated by reference to 22 observed values of the Current Core Index Level, commencing on (and including) the 21<sup>st</sup> Index Business Day prior to Index Business Day  $t$  and ending on (and including) Index Business Day  $t$  (i.e. 21 values of ).

The Exposure of the Index Level to the Core Index Level will never be more than 100 per cent. The Exposure of the Index Level to the Core Index Level shall never be less than 0 per cent.

The “**Exposure**” ( $exp_t$ ) in respect of the Index Start Date shall be 100 per cent.

The “**Exposure**” ( $exp_t$ ) in respect of each Index Business Day (following the Index Start Date) shall be an amount (expressed as a percentage) determined by the Index Calculation Agent in accordance with the following formula:

where:

$exp_t$  = The Exposure of the Gross Index Level to the Core Index Level as at Index Business Day  $t$

$exp_{t-1}$  = The Exposure of the Gross Index Level to the Core Index Level as at the Index Business Day immediately preceding Index Business Day  $t$

if, otherwise = The amount immediately preceding “, if” if the condition immediately following the comma is satisfied or, if that condition is not satisfied, the amount immediately preceding “, otherwise”

abs = The absolute value of the amount within the set of brackets immediately following the “abs” symbol

max = The higher of the amounts separated by a comma within the set of brackets immediately following the “max” symbol

min        = The lower of the amounts separated by a comma within the set of brackets immediately following the  
             = "min" symbol

exp\_max   = 100 per cent. (being the maximum Exposure)

exp\_min   = 0 per cent. (being the minimum Exposure)

Page 12 of 49

Volatility Target = 5 per cent. p.a.

VT Buffer = 10 per cent.

The Realized Volatility of the returns of the Current Core Index Level (as determined in accordance with paragraph 1.5 (*Current Core Index Level*) of this Part D (*Calculation of the Index Level*)) as at the Index Business Day immediately preceding Index Business Day t, where:

“**Realized Volatility**” means, in respect of any Index Business Day t from (and including) the Index Start Date, an amount (expressed as a percentage) determined by the Index Calculation Agent in accordance with the following formula:

$$\text{Current Core Vol}_{t-1} =$$

where:

$\text{CurrentCoreVol}_t$  = The realized, annualized volatility as at Index Business Day t of the natural logarithm of the returns of the Current Core Index Level calculated over an observation window of 21 consecutive Index Business Days ending on (and including) Index Business Day t

$\text{CurrentCoreIL}_{t,k}$  = Current Core Index Level in respect of Index Business Day k as calculated as at Index Business Day t and as determined in accordance with paragraph 1.5 (*Current Core Index Level*) of this Part D (*Calculation of the Index Level*)

ln = The natural logarithmic function

A series of 21 sequential Index Business Days k starting on  $k=t-20$  and ending on  $k=t$  (inclusive)

k = For the avoidance of doubt, this means that  $\text{CurrentCoreVol}_t$  is calculated by reference to 21 values of based on 22 values of  $\text{CurrentCoreIL}$

k-1 = The Index Business Day immediately preceding Index Business Day k

N = 21

## 1.5 Current Core Index Level

The "**Current Core Index Level**" as at Index Business Day k shall be determined by the Index Calculation Agent on each Index Business Day t (starting from and including the Index Start Date) to be an amount calculated by the Index Calculation Agent in accordance with the following formula:

where:

$CurrentCoreIL_{t,k}$  = Current Core Index Level as at Index Business Day k calculated as at Index Business Day t

$CCL_{i,k}$  = Constituent Closing Level of Constituent i as at Index Business Day k, as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)

A series of 22 sequential Index Business Days k starting on  $k=t-21$  and ending on  $k=t$  (inclusive)

k = For the avoidance of doubt, this means that 22 separate values for  $CurrentCoreIL_{t,k}$  will be determined by the Index Calculation Agent on each Index Business Day t

= Unit Weight of Constituent i as at Index Business Day t, determined in accordance with paragraph 1.6 (*Current Core Index Unit Weights*) of this Part D (*Calculation of the Index Level*)

## 1.6 Current Core Index Unit Weights

The "**Unit Weights**" of each Constituent in the Current Core Index will be determined by the Index Calculation Agent as at each Index Business Day t from (and including) the Index Start Date, in accordance with the following formulae:

(a) if Index Business Day t is not a Selection Date, the Unit Weights of each Constituent of the Current Core Index will be determined by the Index Calculation Agent in accordance with the following formula:



(b) if Index Business Day t is a Selection Date, the Unit Weights of each Constituent of the Current Core Index will be determined by the Index Calculation Agent in accordance with the following formula:

in each case, where:

=Unit Weight of Constituent i as at Index Business Day t

=  $\frac{\text{Weight of Constituent i in the Core Index as at Index Business Day t, as determined in accordance with paragraph 1.7 (Weight of Constituents of Core Index) of this Part D (Calculation of the Index Level)}}{\text{Total Weight of Constituents of Core Index as at Index Business Day t}}$

$\text{CoreIndex}_t$  = Core Index Level as at Index Business Day t, as determined in accordance with paragraph 1.3 (*Core Index Level*) of this Part D (*Calculation of the Index Level*)

$\text{CCL}_{i,t}$  = Constituent Closing Level of Constituent i as at Index Business Day t, as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)

$\text{PW}_{i,t}$  = Percentage Weight of Constituent i as at Index Business Day t, as determined in accordance with paragraph 2.1 (*Determination of Percentage Weight*) of this Part D (*Calculation of the Index Level*)

## 1.7 Weight of Constituents of Core Index

As at each Index Business Day t that:

(a) is a Rebalancing Date falling on or after the Core Index Start Date, the Weight of each Constituent i of the Core Index will be determined as follows:

(b) is not a Rebalancing Date, the Weight of each Constituent shall be determined by the following formula:

in each case, where:

$\text{Weight}_{i,t}$  = Weight of Constituent i of the Core Index as of Index Business Day t (and if such Index Business Day t is a Rebalancing Date, *after* rebalancing on such date)

$\text{Weight}_{i,t-1}$  = Weight of Constituent i of the Core Index as of the Index Business Day immediately preceding Index Business Day t (and if such Index Business Day is a Rebalancing Date, *after* rebalancing on such date)

$\text{CoreIndex}_t$  = Core Index Level as at Index Business Day t, as determined in accordance with paragraph 1.3 (*Core Index Level*) of this Part D (*Calculation of the Index Level*)

$\text{CCL}_{i,t}$  = Constituent Closing Level of Constituent i as at Index Business Day t, as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)

$\text{PW}_{i,t-1}$  = Percentage Weight of Constituent i of the Core Index as at the Index Business Day immediately preceding Index Business Day t

## **2. DETERMINATION OF PERCENTAGE WEIGHT AND REBALANCING PROCESS**

### **2.1 Determination of Percentage Weight**

A Selection Date is an Index Business Day on which the Market Regime determined by the Index Calculation Agent is different from that of the immediately preceding Index Business Day (subject to adjustment in

accordance with Part G (*Adjustment of dates*)). Whether or not a Selection Date arises therefore depends upon a comparison of the Market Regime on an Index Business Day and the immediately prior Index Business Day. That is further described in paragraph 2.2 (*Determination of Market Regime and signals*) of this Part D (*Calculation of the Index Level*).

As at each Selection Date, the Index Calculation Agent shall determine, in accordance with the methodology set out below, the respective Percentage Weights that shall be allocated to each Constituent  $i$  from, but excluding, the Rebalancing Date immediately following such Selection Date to, and including, the second Rebalancing Date immediately following such Selection Date, as follows:

Where:

$w_{i,t}$  = Percentage Weight for Constituent 1 on Selection Date  $s$

$w_{2,t}$  = Percentage Weight for Constituent 2 on Selection Date  $s$

$M_t$  = Market Regime on Selection Date  $s$ , as determined in accordance with paragraph 2.2 (*Determination of Market Regime and signals*) of this Part D (*Calculation of the Index Level*)

However, if Index Business Day  $t$  is not a Selection Date, then:

## **2.2 Determination of Market Regime and signals**

For the purposes of determining whether a Selection Date has arisen (and determining the Percentage Weight of each Constituent in respect of such Selection Date), as at each Index Business Day  $t$  (starting on the first Selection Date), the Index Calculation Agent shall determine the applicable Market Regime (1, 2 or 3). This involves the Index Calculation Agent calculating two signals, jointly taken to signal the applicable Market Regime:

a Trend Signal, which aims to model the recent performance of the Equity Constituent, as determined in (a) accordance with paragraph 2.2.2 (*Determination of Trend Signal*) of this Part D (*Calculation of the Index Level*) (the "**Trend Signal**"); and

a Volatility Signal, which aims to model the recent realized volatility of the returns of the Equity Constituent, as (b) determined in accordance with paragraph 2.2.3 (*Determination of Volatility Signal*) of this Part D (*Calculation of the Index Level*) (the "**Volatility Signal**").

### **2.2.1 Determination of Market Regime**

The Index Calculation Agent shall determine the Market Regime (1, 2 or 3) as at each Index Business Day, starting on (and including) the first Selection Date, as follows:

- (a) if the absolute value of the Trend Signal as at Index Business Day  $t$  is strictly less than T-Critical:



The Index Calculation Agent shall determine the Trend Signal as at each Index Business Day in accordance with the following formula:

where:

<sup>3</sup> The T-Critical number is used to determine whether the Trend Signal is statistically significant or not. In mathematical terms, the “T-Critical” number is the two-tailed inverse of the Student’s t-distribution for a probability of 5% and a number of degrees of freedom equal to 19 (the number of returns considered in the linear regression used to determine the value of the Trend Signal, minus two). When the absolute value of the Trend Signal is above the T-Critical number, the trend identified by the linear regression is deemed to be statistically significant at the 95% confidence level.

Page 17 of 49

and

where:

=The slope of the linear regression measured by  $\beta$ , on a risk-adjusted basis (as measured by  $\beta_{adj}$ )

$\beta_{t,j}$  = The slope as at Index Business Day  $t$  of the linear regression of the natural logarithm of the Constituent Closing Level of the Equity Constituent against time (measured in Index Business Days)

$\sigma_{t,j}$  = The standardized error as at Index Business Day  $t$  of the estimate of the natural logarithm of the Constituent Closing Level of the Equity Constituent against time (measured in Index Business Days)

$N$  = An integer, ranging from 1 to  $N$ , as specified

$j$  = For the avoidance of doubt, this means that there will be 21 observed values of the Constituent Closing Level in the observation period

$N$  = 21

$\ln$  = The natural logarithmic function

$CCL_{1,t-N+j}$  = Constituent Closing Level of the Equity Constituent as at each Index Business Day  $t-N+j$ , as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)

$CCL_{1,t}$  = Constituent Closing Level of the Equity Constituent as at Index Business Day  $t$ , as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)

$\bar{CCL}_{1,t}$  = The arithmetic mean of the Closing Constituent Level of the natural logarithm of the Equity Constituent calculated over an observation window of 21 consecutive Index Business Days ending on (and including) Index Business Day  $t$



For the avoidance of doubt, this means that there will be 21 observed values of the Constituent Closing Level in the observation period

### 2.2.3 Determination of Volatility Signal

The Volatility Signal represents the recent realized volatility of the returns of the Equity Constituent. The Volatility Signal shall be determined as at each Index Business Day  $t$  by the Index Calculation Agent observing the Constituent Closing Level of the Equity Constituent over an observation window of 63 Index Business Days. This means that the Volatility Signal is calculated by reference to 64 observed values of the Constituent Closing Level of the Equity Constituent, commencing on (and including) the 63<sup>rd</sup> Index Business Day prior to Index Business Day  $t$  and ending on (and including) Index Business Day  $t$  (i.e. 63 values of ).

The Index Calculation Agent shall determine the Volatility Signal as at each Index Business Day in accordance with the following formula:

where:

The Volatility Signal as at Index Business Day  $t$ , being the realized, annualized volatility of the natural logarithm of the returns of the Constituent Closing Level of the Equity Constituent calculated over an observation window of 63 consecutive Index Business Days ending on (and including) Index Business Day  $t$

$M = 63$

A series of 63 sequential Index Business Days  $k$  starting on  $k=t-62$  and ending on  $k=t$  (inclusive)

$k =$  For the avoidance of doubt, this means that  $k$  is calculated by reference to 63 values of based on 64 values of  $CCL_1$

$k-1 =$  The Index Business Day immediately preceding Index Business Day  $k$

$\ln =$  The natural logarithmic function

$CCL_{1,k} =$  Constituent Closing Level of the Equity Constituent as at Index Business Day  $k$ , as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)

$CCL_{1,k-1} =$  Constituent Closing Level of the Equity Constituent as at each Index Business Day  $k-1$ , as determined in accordance with Part F (*Valuation of Constituents*) and Part I (*Provisions relating to Constituents*)



Regulatory Event

**1. REGULATORY EVENT**

“**Regulatory Event**” shall mean that, owing to any change in applicable law or regulation, the Index Calculation Agent determines that either:

(1) a hypothetical broker dealer (subject to a regulatory regime comparable to the regime applicable to U.S.-registered broker-dealers) would be either (a) required (or there is a reasonable likelihood that, within the next 30 Index Business Days, it would be required) to unwind positions in, or dispose of, any instrument or security on which the value of a Constituent depends; or (b) not permitted (or there is a reasonable likelihood that, within the next 30 Index Business Days, it would not be permitted) to hold, acquire, establish, increase, decrease or dispose of positions in any instrument or security on which the value of a Constituent depends;

(2) the Index Administrator or the Index Calculation Agent is not permitted (or there is a reasonable likelihood that, within the next 30 Index Business Days, it will not be permitted) to continue to sponsor, administer, maintain or calculate, as applicable, an index which contains a particular instrument or security on which the value of a Constituent depends.

**2. FOLLOWING A REGULATORY EVENT**

Following the occurrence of a Regulatory Event, the Index Calculation Agent shall determine whether or not such occurrence has a material effect on the Index.

(1) If the Index Calculation Agent determines that such occurrence has a material effect on the Index, then the Index Calculation Agent shall inform the Index Administrator of such determination and either:

(a) the Index Administrator shall follow procedures established by the Index Governance Committee in order to amend the Index and these Index Conditions; or

(b) the Index Administrator may discontinue and cancel the Index.

(2) If the Index Calculation Agent determines that such occurrence does not have a material effect on the Index, then with effect from (and including) a date designated by the Index Administrator (in which case the Index Administrator will notify the relevant date to the Index Calculation Agent) or the Index Calculation Agent:

(a) the Constituent affected by such Regulatory Event (the “**Removed Constituent**”) shall be removed from the Index; and

(b) subject to the Index methodology and the Expert Judgement of the Index Calculation Agent, either (i) the Weight of the remaining Constituents shall be scaled up such that the Weight of the Removed Constituent is proportionately redistributed to the remaining Constituents; or (ii) the Index Calculation Agent may replace the Removed Constituent with a replacement constituent which has substantially similar characteristics to the Removed Constituent, having regard to the manner in which the Removed Constituent is used in the calculation of the Index, in which case the Index Calculation Agent will determine the effective date of such replacement and make such adjustment(s) to these Index Conditions as it determines appropriate to account for the effect on the Index of such replacement.



Part E: Data

Index Universe - Constituents

(As at the Core Index Start Date.)

i Constituent	Classification S&P Ticker
1. S&P 500 Futures Excess Return Index	Generic Index SPXFP<Index>
2. S&P 10Y US T-Note Futures Excess Return Index	Generic Index SPUSTTP<Index>

Dates and times

**Index Business Day:** Each day (1) on which commercial banks and foreign exchange markets are scheduled to be open for general business (including dealings in foreign exchange and foreign exchange currency deposits) in New York City; and (2) which is also a Scheduled Trading Day for each of the Constituents.

**Index Valuation Time:** In respect of an Index Business Day, 5:00 p.m. (New York time) on such Index Business Day.

**Postponed Rebalancing Date:** Means any day which is a Rebalancing Date pursuant to the provisions of paragraphs 2.1 and/or 2.3 of Part G (*Adjustment of dates*).

**Rebalancing Date:** The Index Business Day immediately following each Selection Date (a “**Scheduled Rebalancing Date**”), subject to adjustment for Postponed Rebalancing Dates and subject to adjustment in accordance with Part G (*Adjustment of dates*).

The Core Index Start Date shall be deemed to be the first Rebalancing Date.

**Valuation Date:** Each Index Business Day (being a “**Scheduled Valuation Date**”), subject to adjustment in accordance with Part G (*Adjustment of dates*).

Each Index Business Day on which the Market Regime determined by the Index Calculation Agent is different from that of the immediately preceding Index Business Day, subject to adjustment in accordance with Part G (*Adjustment of dates*).

**Selection Date:** The first Selection Date shall be deemed to be 8 December 1997 (being the day immediately prior to the Core Index Start Date).



Part F: Valuation of Constituents

**1. CONSTITUENT CLOSING LEVEL**

The Constituent Closing Level of a Constituent on a Valuation Date shall be the level, price, rate or value specified in Part I (*Provisions relating to Constituents*), and determined by the Index Calculation Agent, where applicable, by reference to the Electronic Page specified in respect of such Constituent in Part E (*Data*) under the heading “S&P Ticker”.

**2. CORRECTIONS OF PUBLISHED OR ANNOUNCED LEVELS, PRICES, RATES OR VALUES**

If the level, price, rate or value (as applicable) of any Constituent for any time on any day, that is (1) announced by or on behalf of the person or entity responsible for such publication or announcement; and (2) used for any calculation or determination in respect of the Index, is subsequently corrected, and the corrected level, price, rate or value (as applicable) (the “**Corrected Level**”) is published by or on behalf of such person or entity within the Correction Period in respect of such Constituent, then such Corrected Level shall be deemed to be the level, price, rate or value (as applicable) for such Constituent for the relevant time on the relevant day. If the Correction Period does not include a Rebalancing Date, then the Index Calculation Agent shall revise the Index Level for such day. If the Correction Period includes a Rebalancing Date, then the Index Calculation Agent may, but shall not be obliged to, make appropriate adjustments to the Index Level for such day (using Expert Judgement (as defined below)), and the Index Calculation Agent will exercise such Expert Judgement in a manner that is consistent with the primary objective of the Index.



Part G: Adjustment of dates

**1. ADJUSTMENT OF SCHEDULED VALUATION DATES**

**1.1 “Holidays”: “Look Back”**

If a Scheduled Valuation Date (other than a Rebalancing Date but including any date on which both of the Trend Signal and Volatility Signal are determined) “svd” is not a Scheduled Trading Day for any Constituent, then:

(1) the relevant Valuation Date for each Constituent for which svd is a Scheduled Trading Day shall be svd; and

the relevant Valuation Date for each Constituent for which svd is not a Scheduled Trading Day shall be the first

(2) Index Business Day immediately preceding svd which is both (a) a Scheduled Trading Day for such Constituent; and (b) not a Disrupted Day for such Constituent.

**1.2 “Disruptions”: “Move In Block”**

If a Scheduled Valuation Date (other than a Rebalancing Date but including any date on which both of the Trend Signal and Volatility Signal are determined) (after any adjustment in accordance with paragraph 1.1) “svd” is a Disrupted Day for any Constituent, then the relevant Valuation Date shall be the earlier of: (1) the first Index Business Day immediately following svd which is both (a) a Scheduled Trading Day for all Constituents, and (b) not a Disrupted Day for any Constituent; and (2) the fifth Scheduled Trading Day for all Constituents immediately following svd, notwithstanding that such day is a Disrupted Day for any Constituent, in which case the provisions of Part H (*Adjustments, disruption and cancellation*) shall apply.

**2. ADJUSTMENT OF SCHEDULED REBALANCING DATES**

**2.1 “Holidays”: “Move In Block”**

If a Scheduled Rebalancing Date “srd” is not a Scheduled Trading Day for any Constituent, then the relevant Rebalancing Date shall be the first Index Business Day immediately following srd which is a Scheduled Trading Day for all Constituents.

**2.2 “Postponed Rebalancing Date” for prior Selection Date: “Move In Block”**

If any Scheduled Rebalancing Date “srd” in respect of a Selection Date is a Postponed Rebalancing Date in respect of a prior Selection Date, then the relevant Rebalancing Date shall be the first Index Business Day immediately following srd which is a Scheduled Trading Day for all Constituents for such Scheduled Rebalancing Date and is not a Postponed Rebalancing Date.

**2.3 “Disruptions”: “Value What You Can”**

If a Scheduled Rebalancing Date (after any adjustment in accordance with paragraph 2.1) “**srd**” is a Disrupted Day for any Constituent, then:

(1) the relevant Rebalancing Date for each Constituent for which **srd** is not a Disrupted Day shall be **srd**; and

the relevant Rebalancing Date for each Constituent for which **srd** is a Disrupted Day shall be the earlier of

(a) the first Index Business Day immediately following **srd** which is both (i) a Scheduled Trading Day for such Constituent; and (ii) not a Disrupted Day for such Constituent; and (b) the fifth Scheduled Trading Day for such Constituent immediately following **srd**, notwithstanding that such day is a Disrupted Day for any Constituent, in which case the provisions of Part H (*Adjustments, disruption and cancellation*) shall apply.

**3. When a Scheduled Date is all of a “Holiday”, a Postponed Rebalancing Date and “Disrupted”**

If a Scheduled Valuation Date or a Scheduled Rebalancing Date (each, a “**Scheduled Date**”) (1) is not a Scheduled Trading Day for any Constituent; (2) is a Postponed Rebalancing Date; and (3) is a Disrupted Day for any Constituent, then:

- (1) *first*, such Scheduled Date shall be postponed in accordance with paragraph 1.1 or paragraph 2.1 above (as applicable) to adjust for any “holiday”; and then
- (2) *second*, such Scheduled Date after such postponement shall be further adjusted (if necessary) in accordance with paragraph 2.2 above (as applicable) for any “postponed rebalancing”; and then
- (3) *third*, such Scheduled Date after such postponement shall be further adjusted (if necessary) in accordance with paragraph 1.2 or paragraph 2.3 above (as applicable) for any “disruption”.

Part H: Adjustments, disruption and cancellation

**1. ADJUSTMENT EVENTS**

If an Adjustment Event occurs in respect of a Constituent (the “**Affected Constituent**”), then:

the Index Calculation Agent may suspend the calculation, publication and dissemination of the Index and the  
(a) Index Level until the first succeeding Index Business Day on which such Adjustment Event does not occur or continue to occur; and/or

the Index Calculation Agent may replace the Affected Constituent with a replacement constituent which has  
(b) substantially similar characteristics to the Affected Constituent, having regard to the manner in which the Affected Constituent is used in the calculation of the Index, in which case the Index Calculation Agent will:

(i) determine the effective date of such replacement; and

(ii) make such adjustment(s) to these Index Conditions as it determines appropriate to account for the effect on the Index of such replacement; and/or

(c) the Index Administrator may discontinue and cancel the Index.

**2. DISRUPTED DAYS**

If any Index Business Day is a Disrupted Day for any Constituent, then the Index Calculation Agent may:

publish its good faith estimate of the Index Level for such Index Business Day (notwithstanding the occurrence of a Disrupted Day), using its good faith estimate of the value of the Constituent(s) affected by the occurrence of a Disrupted Day. Any such estimated value may be subject to correction once the relevant event or circumstances giving rise to such Disrupted Day cease; and/or  
(a)

suspend the calculation, publication and dissemination of the Index and the Index Level until the first succeeding Index Business Day which is not a Disrupted Day for any Constituent.  
(b)

**3. CANCELLATION OF THE INDEX**

The Index Administrator may discontinue and cancel the Index at any time and is under no obligation to continue, or to procure the continuation of, the calculation, publication and dissemination of the Index and the Index Level.

Part I: Provisions relating to Constituents

Generic Index

This section of this Part I (*Provisions relating to Constituents*) is applicable only to each Constituent which is classified (in Part E (*Data*) under the heading “*Classification*”) as a “Generic Index” (each such Constituent, a “**Generic Index**”).

A Generic Index shall also be classified as a Constituent Index for the purposes of the Additional Constituent Index Definitions, which set of additional definitions is set out at the end of this Part I (*Provisions relating to Constituents*) and must be read in conjunction with this section of this Part I (*Provisions relating to Constituents*).

Constituent Closing Level:	The official closing level at the Valuation Time of the relevant Generic Index, or if the level of such Generic Index is published only once a day, the level of such Generic Index as displayed on the applicable Electronic Page.
Scheduled Trading Day:	Any day on which the relevant Constituent Index Sponsor (or an agent appointed by such Constituent Index Sponsor) is scheduled to publish the level of the relevant Generic Index.
Disrupted Day:	Any Scheduled Trading Day on which a Market Disruption Event occurs.
Adjustment Event:	Each of the following: (1) Constituent Index Cancellation; (2) Constituent Index Modification; (3) Constituent Licensing Event.
Correction Period:	30 calendar days.

“**Component**” shall mean, in respect of the relevant Generic Index, each component included in such Generic Index.

“**Constituent Licensing Event**” shall have the meaning given to it in Part J (*Definitions*).

“**Exchange**” shall mean, in respect of the relevant Component, the primary exchange, trading system or quotation system (“**Trading Venue**”) in respect of such relevant Component, or any successor to such Trading Venue, or any substitute Trading Venue to which trading in such relevant Component has temporarily relocated, provided that, in the determination of the Index Calculation Agent, there is comparable liquidity in such relevant Component on such temporary substitute Trading Venue as on the original Trading Venue.

“**Exchange Business Day**” shall mean, in respect of the relevant Generic Index, any Scheduled Trading Day for such Generic Index on which the relevant Constituent Index Sponsor publishes the level of such Generic Index.

“**Market Disruption Event**” shall mean, in respect of the relevant Generic Index:

- (1) the relevant Constituent Index Sponsor (or an agent appointed by such Constituent Index Sponsor) fails to publish the level of such Generic Index; or
- (2) the relevant Exchange or any relevant Related Exchange fails to open for trading during its regular trading session;  
or
- (3) the occurrence or existence at any time during the one hour period which ends at the relevant Valuation Time of any suspension of or limitation imposed (by reason of movements in price exceeding permitted limits or otherwise) on the trading on (a) any relevant Exchange of Components

which in aggregate comprise 20 per cent. or more of the level of such Generic Index; or (b) any relevant Related Exchange of futures contracts or option contracts relating to such Generic Index; or

(4) the occurrence or existence at any time during the one hour period which ends at the relevant Valuation Time of any other event (other than an event described in (5) or (6) below) which disrupts or impairs the ability of market participants in general (a) (on any relevant Exchange) to effect transactions or to obtain market values for Components which in aggregate comprise 20 per cent. or more of the level of such Generic Index; or (b) (on any relevant Related Exchange) to effect transactions in or to obtain market values for futures contracts or option contracts relating to such Generic Index; or

(5) the closure (which has a material effect on the Index) on any Exchange Business Day of any relevant Exchange in respect of Components (which in aggregate comprise 20 per cent. or more of the level of such Generic Index) prior to its Scheduled Closing Time (unless such earlier closing time is announced by such Exchange at least one hour prior to (a) the actual closing time for the regular trading session on such Exchange on such Exchange Business Day; and (b) the deadline for the submission of orders to be entered into such Exchange for execution at the relevant Valuation Time on such Exchange Business Day); or

(6) the closure (which has a material effect on the Index) on any Exchange Business Day of any relevant Related Exchange in respect of futures contracts or option contracts relating to such Generic Index prior to its Scheduled Closing Time, unless such earlier closing time is announced by such Related Exchange at least one hour prior to (a) the actual closing time for the regular trading session on such Related Exchange on such Exchange Business Day; and (b) the deadline for the submission of orders to be entered into such Related Exchange for execution at the relevant Valuation Time on such Exchange Business Day.

For the purposes of determining whether or not a Market Disruption Event exists in respect of the relevant Generic Index at any time, if an event giving rise to a Market Disruption Event occurs in respect of a Component included in such Generic Index at that time, then the relevant percentage contribution of such Component to the level of such Generic Index shall be based on a comparison of (1) the portion of the level of such Generic Index attributable to such Component; and (2) the overall level of such Generic Index immediately before the occurrence of such Market Disruption Event.

“**Related Exchange**” shall mean, in respect of the relevant Generic Index, each exchange, trading system or quotation system (“**Trading Venue**”) in respect of futures contracts or option contracts relating to such Generic Index, or any successor to such Trading Venue, or any substitute Trading Venue to which trading in such futures contracts or option contracts has temporarily relocated, provided that, in the determination of the Index Calculation Agent, there is comparable liquidity in such futures contracts or option contracts on such temporary substitute Trading Venue as on the original Trading Venue.

“**Scheduled Closing Time**” shall mean, in respect of a Scheduled Trading Day and an Exchange or Related Exchange (as relevant), the scheduled weekday closing time on such Exchange or Related Exchange (as relevant) on such Scheduled Trading Day, without regard to after-hours trading or any other trading outside the hours of the regular trading session on such Exchange or Related Exchange.

“**Valuation Time**” shall mean, in respect of the relevant Generic Index, a Constituent Closing Level and a Scheduled Trading Day for such Generic Index, either:

(1) the Scheduled Closing Time on the relevant Exchange on such Scheduled Trading Day; or

if the level of such Generic Index is only published once a day (a) for the purposes of determining whether a Market Disruption Event has occurred: (i) in respect of any Component, the time at which such Component is valued for the purposes of determining the level of such Generic Index for the relevant day; and (ii) in respect of (2) any futures contract or options contract relating to such Generic Index, the close of trading on the relevant Related Exchange; and (b) in all other circumstances, the time when the official closing level of such Generic Index for such day is calculated and published by the relevant Constituent Index Sponsor.



Additional Constituent Index Definitions

The following definitions constitute the “**Additional Constituent Index Definitions**”.

“**Constituent Index**” shall mean each Constituent classified as such.

“**Constituent Index Cancellation**” shall mean, in respect of any Constituent Index, that the relevant Constituent Index Sponsor permanently cancels such Index.

“**Constituent Index Modification**” shall mean, in respect of any Constituent Index, that the relevant Constituent Index Sponsor announces that it will make a material change in the formula for or method of calculating such Constituent Index or in any other way materially modifies such Constituent Index (other than a modification prescribed in that formula or method to maintain such Constituent Index in the event of routine events).

“**Constituent Index Sponsor**” shall mean, in respect of any Constituent Index, the corporation or entity which (1) is responsible for setting and reviewing the rules and procedures and methods of calculations and adjustments, if any, related to such Constituent Index; and (2) announces (directly or through an agent) the level of such Constituent Index on a regular basis.

**SUCCESSOR CONSTITUENT INDEX AND SUCCESSOR CONSTITUENT INDEX SPONSOR**

If the relevant Constituent Index is (1) not calculated and announced by the relevant Constituent Index Sponsor but is calculated and announced by a successor sponsor acceptable to the Index Calculation Agent; or (2) replaced by a successor index using, in the determination of the Index Calculation Agent, the same or a substantially similar formula for or method of calculation as used in the calculation of such Constituent Index, then in each case that index will be deemed to be such Constituent Index with effect from the date determined by the Index Calculation Agent, who may (but is not obliged to) make such adjustment(s) to these Index Conditions as it determines appropriate to account for such change.

Part J: Definitions

“**Adjustment Event**” shall, in respect of a Constituent, have the meaning given in the relevant section of Part I (*Provisions relating to Constituents*).

“**Affiliate**” shall mean, in respect of a person “**X**”, any entity controlled (directly or indirectly) by X, any entity which controls (directly or indirectly) X or any entity (directly or indirectly) under common control with X. For this purpose, “**control**” of any person or entity shall mean the ownership or a majority of the voting power of such person or entity.

“**Citi**” shall mean Citigroup Inc. and its Affiliates.

“**Constituent**” shall mean each constituent of the Index, as specified in Part E (*Data*) or otherwise deemed or determined to be a constituent of the Index pursuant to these Index Conditions. Each Constituent shall be identified by a unique serial number, denoted by “i”, as specified in Part E (*Data*). Part E (*Data*) also sets out the classification of each Constituent.

“**Constituent Closing Level**” shall have the meaning given in Part F (*Valuation of Constituents*).

“**Constituent Licensing Event**” shall mean, in respect of a Constituent, that (1) any licence granted to the Index Administrator and/or the Index Calculation Agent and/or any of their respective Affiliates to use such Constituent in connection with the Index is terminated; or (2) any such person’s right to use such Constituent in connection with the Index is otherwise disputed, impaired or ceases for any reason.

“**Core Index**” shall mean a notional index constituted in accordance with, and with a notional closing level (on each Index Business Day for which the Core Index Level is calculated) equal to the Core Index Level as specific in, Part D (*Calculation of the Index Level*).

“**Core Index Level**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Correction Period**” shall, in respect of a Constituent, have the meaning given in the relevant section of Part I (*Provisions relating to Constituents*).

“**Current Core Index**” shall mean a notional index constituted in accordance with, and with a notional closing level (on each Index Business Day for which the Current Core Index Level is calculated) equal to, the Current Core Index Level.

“**Disrupted Day**” shall, in respect of a Constituent, have the meaning given in the relevant section of Part I (*Provisions relating to Constituents*).

“**Electronic Page**” shall mean, in respect of a datum, (1) an electronic page or source specified in respect of such datum in these Index Conditions; or (2) if no such electronic page or source has been so specified, such Bloomberg page or Reuters page or other widely-recognized source of financial data as the Index Calculation Agent may determine appropriate; or (3) in any case, any successor electronic page or source that has been designated by either (a) the sponsor of the original electronic page or source; or (b) the relevant information vendor or provider of the original electronic page or source; or (4) any alternative electronic page or source that may be designated by the Index Calculation Agent, provided that such electronic page or source is widely recognized by participants in the relevant market.

“**Equity Constituent**” shall mean the Share Index specified in Part E (*Data*) or the corresponding index otherwise deemed or determined to be a constituent of the Index pursuant to these Index Conditions.

“**Expert Judgement**” shall have the meaning given in Part L (*Miscellaneous*).

“**Exposure**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Gross Index Level**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**ICA Replacement Date**” shall have the meaning given in Part B (*Key information*).

“**Index**” shall mean the Citi Dynamic Asset Selector 5 Excess Return Index, as described in these Index Conditions.

“**Index Administrator**” shall mean the person specified as such in Part B (*Key information*) or any successor to such person or any assignee of such person.

“**Index Base Currency**” shall mean the currency specified as such in Part B (*Key information*).

“**Index Business Day**” shall mean each day specified as such in Part E (*Data*).

“**Index Calculation Agent**” shall mean the person specified as such in Part B (*Key information*) and appointed by the Index Administrator, any successor to such person, or any alternative calculation agent appointed by the Index Administrator.

“**Index Conditions**” shall mean this document.

“**Index Launch Date**” shall mean the day specified as such in Part B (*Key information*).

“**Index Level**” shall mean, in respect of an Index Business Day, the closing level of the Index as at the Index Valuation Time on such Index Business Day. The Index Level shall be an amount expressed in the Index Base Currency.

“**Index Linked Product**” shall mean any security, contract or other financial product the return of which is linked, in whole or in part, to the performance of the Index.

“**Index Start Date**” shall mean the date specified as such in Part B (*Key information*).

“**Index Start Level**” shall mean the Index Level as at the Index Start Date, as specified in Part B (*Key information*).

“**Index Ticker**” shall mean the Electronic Page specified as such in Part B (*Key information*).

“**Index Valuation Time**” shall mean the time specified as such in Part E (*Data*).

“**Market Regime**” shall mean Market Regime 1, 2 or 3, as determined by the Index Calculation Agent in respect of an Index Business Day, in accordance with Part D (*Calculation of the Index Level*).

“**Notional Index Fee**” shall have the meaning given in Part B (*Key information*).

“**Part**” shall mean a part of these Index Conditions.

“**Percentage Weight**” shall mean the percentage weight of each Constituent in the Core Index as of the specified Index Business Day, determined in accordance with Part D (*Calculation of the Index Level*).

“**Postponed Rebalancing Date**” shall mean each day specified as such in Part E (*Data*).

“**Realized Volatility**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Rebalancing Date**” shall mean each day specified as such in Part E (*Data*).

“**Scheduled Rebalancing Date**” shall mean each day specified as such in Part E (*Data*).

“**Scheduled Trading Day**” shall, in respect of a Constituent, have the meaning given in the relevant section of Part I (*Provisions relating to Constituents*).

“**Scheduled Valuation Date**” shall mean each day specified as such in Part E (*Data*).



“**Selection Date**” shall mean each day specified as such in Part E (*Data*).

“**T-Critical**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Treasuries Constituent**” shall mean the Generic Index specified in Part E (*Data*) or the corresponding index otherwise deemed or determined to be a constituent of the Index pursuant to these Index Conditions.

“**Trend Signal**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Unit Weight**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Valuation Date**” shall mean each Scheduled Valuation Date, as adjusted in accordance with Part G (*Adjustment of dates*).

“**Volatility Signal**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Volatility Target**” shall have the meaning given in Part D (*Calculation of the Index Level*).

“**Weight**” shall mean the weight of each Constituent in the Core Index as of the specified Index Business Day, determined in accordance with Part D (*Calculation of the Index Level*).

Part K: Risk factors

The discussion of risks in this Part K (*Risk factors*) comprises a discussion of specific risk factors, followed by a discussion of general risk factors.

Specific Risk Factors

**1. *The Index May Not Be Successful and May Underperform Alternative Investment Strategies.***

There can be no assurance that the Index will achieve positive returns. The Index tracks the hypothetical performance of a rules-based investment methodology that, based on signals, selects a hypothetical investment portfolio (the Selected Portfolio, as defined below) to track until the signals determine that a change in U.S. equity market conditions has occurred. The performance of the Index over that period will depend on the performance of the Selected Portfolio over that time period, *minus* the index fee and subject to the Index's volatility-targeting feature, all as more fully described below. In general, if the Selected Portfolio appreciates over that period by more than the index fee, the level of the Index will increase, and if the Selected Portfolio depreciates over that period or appreciates by less than the index fee, the level of the Index will decrease. The performance of the Index may be less favourable than alternative investment strategies that could have been implemented, including an investment in a passive index fund.

**2. *The Index's Signal-based Allocation Methodology Has Significant Limitations.***

The Index will allocate exposure to the Equity Constituent and/or the Treasuries Constituent based on two Signals measured on each Index Business Day: one based on the trend of the performance of the Equity Constituent, measured by the linear regression methodology described below, over an observation period of 21 Index Business Days (the "**Trend Signal**") and one based on the realized volatility of the Equity Constituent over an observation period of 63 Index Business Days (the "**Volatility Signal**"). Based on these Signals, the portfolio tracked by the Index during any given period (the "**Selected Portfolio**", also referred to as the Core Index in these Index Conditions) will be the Equity-Focused Portfolio, the Treasury Portfolio or the Intermediate Portfolio (as defined in Part B (*Key Information*) above), each of which has a predetermined degree of exposure to the Treasuries Constituent and/or the Equity Constituent.

*Limitations of the Trend Signal*

The Index's allocation methodology is premised on the assumption that, on an Index Business Day, the Trend Signal may provide an accurate indicator of the performance of the Equity Constituent until the next change in Market Regime (i.e., when the Signals indicate that another Selected Portfolio should be selected). In other words, the methodology assumes that the Equity Constituent is likely to appreciate until the next change in Market Regime if there is an upward Trend Signal. There is no guarantee that this will be the case, however. The Trend Signal is subject to a number of important limitations, including the following:

- *Past Performance May Not Predict Future Performance.* On any given Index Business Day, the fact that the Equity Constituent may have performed favourably over the prior 21 Index Business Days does not necessarily mean that it will continue to perform favourably in the future. Future market conditions may differ from past market conditions, and the conditions that may have caused the favourable performance over the prior 21 Index Business Days may no longer exist.



- *Markets May be Efficient.* Past appreciation may not necessarily be an indicator of future appreciation even if future market conditions do not differ materially from past market conditions. The efficient market hypothesis, a well-known theory in academic financial literature, states that the market is efficient and that current asset prices reflect all available relevant information. If true, the efficient market hypothesis implies that any perceived historical trend in the performance of the Equity Constituent should not be an accurate predictor of its future performance. If the past performance of the Equity Constituent proves not to be an accurate indicator of its actual performance over the next period, then the Index's trend-following allocation methodology may perform poorly.

- Time lag.* The Trend Signal measures the performance of the Equity Constituent over the last month and therefore suffers from a time lag, which may cause it to be late both in signalling an allocation to the Equity Constituent and in signalling an allocation away from the Equity Constituent. The Index determines the trend of the Equity Constituent based on its levels over an observation period of 21 Index Business Days. If the trend in the performance of the Equity Constituent changes, it may be a significant period of time before the Trend Signal reflects the change. As a result of this time lag, the Trend Signal may signal an allocation to the Equity Constituent long after the Equity Constituent begins to decline, potentially resulting in a significant decline in the level of the Index over a significant period of time. Alternatively, the Trend Signal may not identify the Equity Constituent as being in an upward trend until long after the upward trend began. By the time the Trend Signal finally signals an allocation to the Equity Constituent, the trend may already have run its course, and a period of decline may even have already begun. Because the Trend Signal may signal an allocation to the Equity Constituent after it has already been trending upward for a significant period of time, the Trend Signal may effectively reflect a “buy high” strategy; and because the Trend Signal may signal an allocation away from the Equity Constituent only after it has already been trending downward for a significant period of time, it may effectively reflect a “sell low” strategy. This combination of buying high and selling low may result in poor Index performance.
- Measurement error.* Even if the historical trend in the level of the Equity Constituent proves to be a predictor of the future performance of the Equity Constituent, the way in which the Index measures the trend may not effectively capture it. For example, the Index uses a fixed rule for determining whether the Equity Constituent is deemed to be in an upward trend or a downward trend: if the straight line that results from a linear regression of the levels of the Equity Constituent (expressed logarithmically) on each of the Index Business Days in the 21-Index Business Day period slopes upward, the Index interprets that as an indicator of an upward trend, and if that line slopes downward, the Index interprets that as an indication of a downward trend. If the Equity Constituent appreciated during the first half of the prior month and then depreciated over the next half – but the depreciation was not quite as pronounced as the appreciation – the Index may identify an upward trend even though the most recent trend has been downward. In addition, the Index will not change its Selected Portfolio if the Trend Signal is not deemed to be statistically significant, even if the Signals would otherwise call for a change. The Index also uses an arbitrary cut-off (referred to as “T-Critical”), which may not be the optimal cut-off to use for the Index, for determining whether the Trend Signal is statistically significant or not. There are measurements that the Index will deem to be statistically significant that would not be deemed statistically significant if a higher cut-off were chosen. Alternatively, the Index may be overly restrictive and treat as statistically insignificant Trend Signals that in fact contain meaningful information. In this latter case, the Index may retain exposure to a particular Selected Portfolio long after the Signals have been indicating that a new Portfolio should be selected. The Trend Signal is less likely to be statistically significant when there is significant volatility in the levels of the Equity Constituent, and it may be the case that the current Selected Portfolio will be the Equity-Focused Portfolio, meaning that the Index will be exposed largely to the Equity Constituent, even though the volatility of the Equity Constituent is greater than 15%. Any fixed rule for determining whether the Equity Constituent is in an upward or downward trend and whether such trend will signal a change in Market Regime will necessarily be a blunt tool and, accordingly, may have a high rate of inaccuracy. The particular ways in which the Index operates may produce a lower return than other rules that could have been adopted for the identification of the trend in the level of the Equity Constituent. There is nothing inherent in the particular methodology used by the Index that makes it a more or less accurate predictor of a trend. It is possible that the rules used by the Index may not identify the trend as effectively as other rules that might have been adopted, or at all.
- Whipsaws.* Trend-following methodologies may perform particularly poorly in “choppy” markets, where they may be subject to “whipsaws.” Choppy markets are characterized by short-term volatility and the absence of consistent

long-term performance trends. In choppy markets, whipsaws occur when the market reverses and does the opposite of what is indicated by past performance. The Index may experience a significant decline in these market conditions. For example, if the Index identifies the Equity Constituent as being in an upward trend (and the realized volatility of the Equity Constituent over an observation period of 63 Index Business Days of less than or equal to 15%), the Selected Portfolio tracked by the Index will be the Equity-Focused Portfolio, which provides more exposure to the Equity Constituent than any other possible Portfolio. If, after being allocated

exposure, the Equity Constituent suddenly declines significantly, the level of the Index may also decline significantly.

- *Mean reversion.* The Trend Signal is particularly likely to be ineffective if the Equity Constituent exhibits mean reversion tendencies. Mean reversion is the theory that asset prices tend to fluctuate around, and revert to, a particular level (the “mean”) over time. If the Equity Constituent exhibits a high degree of mean reversion, its level may increase for a sufficient period of time to cause the Trend Signal to identify it as being in an upward trend, but then rapidly fall back toward its long-term mean after the Index allocates exposure to it, leading to declines in the level of the Selected Portfolio and therefore declines in the level of the Index.

#### *Limitations of the Volatility Signal*

The Volatility Signal is based on the assumption that the volatility of the Equity Constituent over an observation period of 63 Index Business Days may be an indicator of future volatility of the Equity Constituent. Based on this assumption, on a Selection Date, the Index will determine to allocate the most exposure to the Equity Constituent when the Volatility Signal is less than 15% (and an upward Trend Signal). There is no guarantee that this assumption will be the case, however. The Volatility Signal is subject to significant limitations, including the following:

- *Time lag.* The Volatility Signal measures volatility over the last three months and therefore suffers from a time lag, which may cause it to be late both in signalling an allocation to the Equity Constituent and in signalling an allocation away from the Equity Constituent. The Index determines the volatility of the Equity Constituent over an observation period of 63 Index Business Days. If the volatility of the Equity Constituent changes, it may be a significant period of time before the Volatility Signal reflects the change. As a result of this time lag, the Volatility Signal may signal an allocation to the Equity Constituent long after the Equity Constituent has become increasingly volatile, which can result in a significant decline in the level of the Index over a significant period of time. Alternatively, the Volatility Signal may not identify the volatility of the Equity Constituent as being low until long after volatility decreased. By the time the Volatility Signal finally signals an allocation to the Equity Constituent, the volatility may have increased again. This may result in poor Index performance.
- *Historical measure.* The 63-Day Realized Volatility is a historical measure of volatility and does not reflect volatility going forward. Realized volatility is not the same as implied volatility, which is an estimation of future volatility and may better reflect market expectations. (The “**63-Day Realized Volatility**” of the Equity Constituent on any Index Business Day is the volatility of the daily closing value of the Equity Constituent over the period of 63 Index Business Days ending on that Index Business Day.)

***The Performance of Each Constituent is Expected to be Reduced by an Implicit Financing Cost and any Increase in this Cost Will Adversely Affect the Performance of the Index.***

3.

Each Constituent is a futures-based index. As a futures-based index, each Constituent is expected to reflect not only the performance of its corresponding reference asset of its underlying futures contract, but also the implicit cost of a financed position in that reference asset. (The relevant reference asset in respect of the Equity Constituent is the S&P 500<sup>®</sup> Index and in respect of the Treasuries Constituent is the 10-Year U.S. Treasury Notes (as defined in Part B (*Key Information*)).) The cost of this financed position will adversely affect the level of each Constituent and, therefore, the Index. Any increase in market interest rates will be expected to further increase this implicit financing cost and will increase the negative effect on the performance of the Constituents and, therefore, the performance of the Index. Because of this implicit financing cost, the Equity Constituent will underperform the total return performance of the S&P 500<sup>®</sup> Index and the Treasuries Constituent will underperform a direct investment in 10-Year U.S. Treasury Notes.

***4. The Index methodology Limits the Exposure the Index may have to the Equity Constituent and, as a Result, the Index is likely to Significantly Underperform Equities in Rising Equity Markets***

In no event will the weight of the Equity Constituent exceed 66.66%, and in two of the three possible Portfolios, the weight of the Equity Constituent will only be either 33.33% or 0%. In addition, the Index uses 15% as a threshold for elevated volatility, which is not unusually elevated from a historical

perspective and may result in reduced or eliminated exposure to the Equity Constituent at a time when equity markets are in fact relatively stable and rising. Furthermore, even at a time when the Selected Portfolio is the Equity-Focused Portfolio, the Index's volatility-targeting feature may result in significantly reduced Index exposure to the Selected Portfolio (and, in turn, to the Equity Constituent) because the Equity-Focused Portfolio is likely to have a realized volatility significantly exceeding 5%. As a result, the Index is likely to significantly underperform the Equity Constituent in rising equity markets.

**5. *The Index's Allocation Methodology May Not Be Successful if the Equity Constituent and the Treasuries Constituent Decline at the Same Time.***

The Index's allocation methodology is premised on the Equity Constituent and the Treasuries Constituent being either uncorrelated or inversely correlated. The thesis underlying the Index's allocation methodology is that, if the Index determines that the Equity Constituent is likely to decline, the Index may avoid losses and even potentially generate positive returns by allocating exposure to the Treasuries Constituent instead of the Equity Constituent. If, however, the Treasuries Constituent also declines, then the Index will decline regardless of whether its exposure is allocated to the Equity Constituent or the Treasuries Constituent. If the Equity Constituent and the Treasuries Constituent tend to decline at the same time—in other words, if they prove to be positively correlated—the Index's allocation methodology will not be successful, and the Index may experience significant declines.

**6. *The Index will Have Significant Exposure to the Treasuries Constituent, which Has Limited Return Potential and Significant Downside Potential, Particularly in Times of Rising Interest Rates.***

The Treasuries Constituent will be included in all three of the possible Portfolios, and in two of the three possible Portfolios it will be either 66.66% or 100% of the weight of that Portfolio. Accordingly, the Index will always be significantly allocated, and will frequently be predominantly or even 100% allocated, to the Treasuries Constituent. U.S. Treasury notes are generally viewed as low risk, low reward assets. Accordingly, the Treasuries Constituent offers only limited return potential, which in turn limits the return potential of the Index. Although U.S. Treasury notes themselves are generally viewed as safe assets, the Treasuries Constituent tracks the value of a futures contract on 10-Year U.S. Treasury Notes, which may be subject to significant fluctuations and declines. In particular, the value of a futures contract on 10-Year U.S. Treasury Notes is likely to decline if there is a general rise in interest rates. A general rise in interest rates is likely to lead to particularly large losses on the Treasuries Constituent because, in addition to reducing the value of the underlying U.S. Treasury notes, the rise in interest rates will increase the implicit financing cost discussed above.

**7. *The Index Fee Will Adversely Affect Index Performance.***

An index fee of 0.85% per annum is deducted in the calculation of the Index. The index fee will place a drag on the performance of the Index, offsetting any appreciation of the Selected Portfolio, exacerbating any depreciation of the Selected Portfolio and causing the level of the Index to decline steadily if the value of the Selected Portfolio remains relatively constant. The Index will not participate in any appreciation of the Selected Portfolio unless it is sufficiently great to offset the negative effects of the index fee, and then only to the extent that the favourable performance of the Selected Portfolio is greater than the index fee (and subject to the volatility-targeting feature). As a result of this deduction, the level of the Index may decline even if the Selected Portfolio appreciates.

**8. *The Index May Fail to Maintain Its Volatility Target and May Experience Large Declines as a Result.***

The Index adjusts its exposure to the Selected Portfolio as often as daily in an attempt to maintain a volatility target of 5%. If the volatility of the Selected Portfolio increases, the Index will reduce its exposure to the Selected Portfolio to the extent necessary to maintain a trailing 21-Day Realized Volatility of 5%. (The “**21-Day Realized**

**Volatility**” of the current Selected Portfolio on any Index Business Day is the volatility of the daily closing value of the current Selected Portfolio (expressed on an annualized basis) over the period of 21 Index Business Days ending on the current Index Business Day, as determined pursuant to paragraph 1.4 (*Exposure and Realized Volatility of Current Core Index*) of Part D (*Calculation of the Index Level*). However, because this exposure adjustment is

backward-looking, based on realized volatility over a prior period of 21 Index Business Days, there may be a time lag of several weeks before a sudden increase in volatility of the Selected Portfolio is sufficiently reflected in the trailing 21-Day Realized Volatility measure to result in a meaningful reduction in exposure to the Selected Portfolio. In the meantime, the Index may experience significantly more than 5% volatility and, if the increase in volatility is accompanied by a decline in the value of the Selected Portfolio, the Index may incur significant losses.

**9. *The Volatility-Targeting Feature Is Likely to Cause the Index to Significantly Underperform the Selected Portfolio in Rising Equity Markets.***

The performance of the Index will be based on the performance of the Selected Portfolio, *but only* to the extent that the Index has exposure to the Selected Portfolio. The Index will have less than 100% exposure to the Selected Portfolio at any time when the 21-Day Realized Volatility of the Selected Portfolio is greater than the Index's volatility target of 5%. The Index will select the Equity-Focused Portfolio to be the Selected Portfolio during rising equity markets. The volatility of the Equity-Focused Portfolio is likely to be greater than the volatility target of 5% because the Equity-Focused Portfolio has 66.66% exposure to the Equity Constituent, and based on historical data the volatility of the Equity Constituent is likely to be significantly greater than 5%. As a result, at any time where the Selected Portfolio is the Equity-Focused Portfolio (if past patterns hold), the Index is likely to have less than 100% exposure to the performance of such Selected Portfolio. An exposure of less than 100% would mean that the Index will participate in only a limited degree of the performance of the Selected Portfolio, and the difference between 100% and that exposure would be hypothetically allocated to cash, on which no interest or other return will accrue. For example, if the realized volatility of the Selected Portfolio was 10% over the look-back period of 21 Index Business Days, then the Index would have 50% exposure to the performance of the Selected Portfolio (the 5% volatility target *divided* by the 10% realized volatility). An exposure of 50% would mean that the Index would participate in only 50% of the performance of the Selected Portfolio. In this example, if the Selected Portfolio were to appreciate by 2%, the Index would only appreciate by 1% (which is 50% of 2%), *minus* the index fee. This limited exposure to the performance of the Selected Portfolio means that the Index is likely to underperform the Selected Portfolio in rising equity markets. The index fee will exacerbate this underperformance.

**10.A *Significant Portion of the Index May Be Hypothetically Allocated to Cash, Which May Dampen Returns.***

At any time when the Index has less than 100% exposure to the Selected Portfolio, a portion of the Index (corresponding to the difference between the exposure to the Selected Portfolio and 100%) will be hypothetically allocated to cash and will not accrue any interest or other return. In the example in the previous risk factor, where the Index has 50% exposure to the Selected Portfolio, the remaining 50% of the Index would be hypothetically allocated to cash. A significant hypothetical allocation to cash will significantly reduce the Index's potential for gains. In addition, the index fee will be deducted from the entire Index, including the portion hypothetically allocated to cash. As a result, after taking into account the deduction of the index fee, any portion of the Index that is hypothetically allocated to cash will experience a net decline at a rate equal to the index fee.

**11. *Depending on the terms of the Index Linked Products, You May Not Receive a Meaningful Incremental Benefit from the Index's Volatility-Targeting Feature Even Though You Will Be Subject to Its Significant Drawbacks.***

One potential benefit of the Index's volatility-targeting feature is that it may reduce the potential for large Index declines in volatile equity markets. However, that reduced potential for large Index declines comes at a price: as discussed above, the volatility-targeting feature is likely to significantly reduce the potential for Index gains in rising equity markets. Depending on the terms of the Index Linked Product you invest in, any reduced potential for large Index declines resulting from the volatility-targeting feature may not provide a meaningful incremental benefit to an investor in the relevant Index Linked Product. Investors in the Index Linked Product will, however,



be fully subject to the drawbacks of the volatility-targeting feature, in the form of the reduced participation in rising equity markets and the other risks described in this section. As a result, you should understand that, depending on the terms of the Index Linked Product that you invest in, any benefit you receive from

the Index's volatility-targeting feature may be outweighed by its drawbacks.

***12. The Volatility-Targeting Feature May Cause the Index to Perform Poorly in Temporary Market Crashes.***

A temporary market crash is an event in which the volatility of the Selected Portfolio spikes suddenly and the Selected Portfolio declines sharply in value over a short period of time, but the decline is short-lived and the Selected Portfolio soon recovers its losses. In this circumstance, although the value of the Selected Portfolio after the recovery may return to its value before the crash, the level of the Index may not fully recover its losses. This is because of the time lag that results from using a look-back period of 21 Index Business Days as the basis for the Index's volatility-targeting feature. Because of the time lag, the Index may not meaningfully reduce its exposure to the Selected Portfolio until the crash has already occurred, and by the time the reduced exposure does take effect, the recovery may have already begun. For example, if the Index has 50% exposure to the decline in the Selected Portfolio, and then reduces its exposure so that it has only 20% exposure to the recovery, the Index will end up significantly lower after the crash and recovery than it was before the crash.

***13. The Performance of the Index Will Be Highly Sensitive to the Specific Parameters by which It Is Calculated.***

The Index is calculated pursuant to a rules-based methodology that contains a number of specific parameters. These parameters will be significant determinants of the performance of the Index. For example, the Index has a volatility target of 5% with a realized volatility look-back period of 21 Index Business Days; the Selected Portfolio can only be one of three possible Portfolios; the Trend Signal is determined based on a linear regression methodology; the Trend Signal will not trigger a rebalancing if the statistical threshold of T-Critical is not met; and the Volatility Signal is based on a realized volatility look-back period of 63 Index Business Days. There is nothing inherent in any of these specific parameters that necessarily makes them the right specific parameters to use for the Index. If the Index had used different parameters, the Index might have achieved significantly better returns.

***14. The Index Will Be Calculated Pursuant to a Set of Fixed Rules and Will Not Be Actively Managed. If the Index Performs Poorly, the Index Administrator Will Not Change the Index Methodology or these Index Conditions in an Attempt to Improve Performance.***

The Index tracks the hypothetical performance of the rules-based investment methodology described in Part D (*Calculation of the Index Level*). The Index will not be actively managed. If the rules-based investment methodology tracked by the Index performs poorly, the Index Administrator will not change the rules in an attempt to improve performance. Accordingly, an investment in an Index Linked Product is not like an investment in a mutual fund. Unlike a mutual fund, which could be actively managed by the fund manager in an attempt to maximize returns in changing market conditions, the Index methodology and Index Conditions will remain unchanged, even if those rules might prove to be ill-suited to future market conditions.

***15. The Index Has Limited Actual Performance Information.***

The Index launched on 13 June 2016. Accordingly, the Index has limited actual performance data. Because the Index is of recent origin with limited performance history, an investment linked to the Index may involve a greater risk than an investment linked to one or more indices with an established record of performance. A longer history of actual performance may have provided more reliable information on which to assess the validity of the Index's hypothetical investment methodology. However, any historical performance of the Index is not an indication of how the Index will perform in the future.

***16. Hypothetical Back-Tested Index Performance Information Is Subject to Significant Limitations.***

All information regarding the performance of the Index prior to 13 June 2016 is hypothetical and back-tested, as the Index did not exist prior to that time. It is important to understand that hypothetical back-tested Index performance information is subject to significant limitations, in addition to the fact that past performance is never a guarantee of future performance. In particular:

- The Index Administrator developed the rules of the Index with the benefit of hindsight—that is,

with the benefit of being able to evaluate how the Index methodology would have caused the Index to perform had it existed during the hypothetical back-tested period. The fact that the Index generally appreciated over the hypothetical back-tested period may not therefore be an accurate or reliable indication of any fundamental aspect of the Index methodology.

- The hypothetical back-tested performance of the Index might look different if it covered a different historical period. The market conditions that existed during the historical period covered by the hypothetical back-tested Index performance information are not necessarily representative of the market conditions that will exist in the future.
- Because the Constituents were not published during the entire period for which the Index Administrator has prepared hypothetical back-tested Index performance information, the hypothetical back-tested Index levels have been calculated by the Index Administrator based in part on hypothetical back-tested levels of the Constituents that were prepared by the index sponsor of the Constituents. The Index Administrator is not aware of the assumptions made by the index sponsor of the Constituents when it calculated the hypothetical back-tested index levels for the Constituents.

It is impossible to predict whether the Index will rise or fall. The actual future performance of the Index may bear no relation to the historical or hypothetical back-tested levels of the Index.

## General Risk Factors

### 1. INTRODUCTION

The Index Level may go down as well as up, depending on the performance of the Constituents and their effect on the strategy that the Index has been developed to reflect. There can be no assurance as to the future performance of the Index, and the Index Level on any day may not reflect either its past performance or its future performance. The strategy that the Index has been developed to reflect may not be successful, and other strategies using the Constituents and alternative indices and benchmarks may perform better than the Index.

The Index represents the weighted value of its Constituents. The Index has been developed to be “investable”, but the methodology set out in these Index Conditions is quantitative, which means that the Index Level is determined according to the rules and the processes set out in these Index Conditions on a purely notional basis, without reference to any actual investment in the Index or any of its Constituents.

The result of any such actual investment may be different to the performance of the Index. In particular, any notional fees or costs deducted in the calculation of the Index Level, and any proportionate amount included in the Index Level of any dividend, distribution or payment in respect of any Constituent, may be different from those arising in respect of any actual investment in any Constituent or any combination of Constituents.

Prospective investors in any Index Linked Product should be familiar with investments in the global financial and commodity markets, financial instruments and indices generally.

## **2. RISKS IN RESPECT OF THE CONSTITUENTS**

The performance of the Index is dependent on the performance of all of the Constituents contained in the Index.

Fluctuations in the level, price, rate or value (as applicable) of the Constituents contained in the Index from time to time will directly affect the Index Level. The extent to which fluctuations in the Constituent Closing Level of a particular Constituent will affect the Index Level will, amongst other things, depend on the Weight attributed to that Constituent at the relevant time.

Please refer to the following paragraphs for a discussion of the particular general market risks arising in respect of each classification of Constituent.

### **Equity Futures Index**

Prospective investors in an Index Linked Product linked to an Index containing an Equity Futures Index should be familiar with equity futures indices generally. The level of an Equity Futures Index is generally based on the value of the shares and/or the exchange-traded derivative contracts (i.e. ETD Contracts) contained in the Equity Futures Index, and therefore the risks discussed under the headings “*Share*” and “*ETD Contract (exchange-traded derivative contract)*” are also relevant.

#### *“Rolling” futures contracts*

The trend in the level of an Equity Futures Index may not correlate with the trend in the price of a particular share if the Equity Futures Index uses a “roll” mechanism by which exposure in the Equity Futures Index to a futures contract which is approaching delivery/expiry is replaced with an exposure to another futures contract which has a later delivery/expiry date. The level of the Equity Futures Index may not therefore fully reflect any increase or decrease in the price of the relevant shares.

### **Bond Futures Index**

Prospective investors in an Index Linked Product linked to an Index containing a Bond Futures Index should be familiar with bond futures indices generally. The level of a Bond Futures Index is generally based on the value of the bonds and/or the exchange-traded derivative contracts (i.e. ETD Contracts) contained in the Bond Futures Index, and therefore the risks discussed under the headings “*Bond*” and “*ETD Contract (exchange-traded derivative contract)*” are also relevant.

#### *“Rolling” futures contracts*

The trend in the level of a Bond Futures Index may not correlate with the trend in the price of a particular bond if the Bond Futures Index uses a “roll” mechanism by which exposure in the Bond Futures Index to a futures contract which is approaching delivery/expiry is replaced with an exposure to another futures contract which has a later delivery/expiry date. The level of the Bond Futures Index may not therefore fully reflect any increase or decrease in the price of the relevant bond.

### **ETD Contract (exchange-traded derivative contract)**

Prospective investors in an Index Linked Product linked to an Index containing an ETD Contract (whether a futures contract or an option contract) should be familiar with futures contracts and option contracts generally. The value and price volatility of both the ETD Contracts contained in an Index and of the assets or reference factors underlying such ETD Contracts must be considered.

#### *Daily limits*

ETD Contracts are traded on exchanges, and are subject to regulations which limit the extent to which the prices of ETD Contracts can fluctuate during a single trading day. These regulations are commonly referred to as “daily limits”. Under these regulations, on a particular trading day, no trades may be executed at prices beyond the daily limits. Once the price of an ETD Contract has increased or decreased by an amount equal to the applicable daily limit, a

trader cannot take a position or liquidate a position unless he is willing to effect the trade at or within the applicable daily limit. This could prevent the holder of an ETD Contract from promptly liquidating unfavourable positions and subject him to substantial losses

**Bond**

Prospective investors in an Index Linked Product linked to an Index containing a Bond should

be familiar with bond securities generally. The price volatility of the Bonds contained in an Index must be considered. The price of the Bonds may go down as well as up, and the price of the Bonds on any date may not reflect their performance in any prior period. There can be no assurance as to the future price of the Bonds, or as to the continued existence of the Bonds or the issuer of the Bonds.

#### **Share**

Prospective investors in an Index Linked Product linked to an Index containing a Share should be familiar with equity securities generally. The price volatility of the Shares contained in an Index must be considered. The price of the Shares may go down as well as up, and the price of the Shares on any date may not reflect their performance in any prior period. There can be no assurance as to the future price of the Shares, or as to the continued existence of the Shares or the issuer of the Shares.

### **3. PERFORMANCE OF THE INDEX**

#### **3.1 The performance of the Index may be significantly lower than the performance of certain Constituents**

The performance of the Index could be significantly less than the performance of alternative indices and benchmarks with similar risk characteristics, even if some of the Constituents have generated significant positive returns. The levels, prices, rates or values (“**Values**”) of the Constituents may move in different directions at different times compared to each other, and underperformance by one or more of the Constituents may reduce the performance of the Index as a whole, even if other Constituents generate positive returns.

#### **3.2 The correlation between the Constituents may change unpredictably**

Correlation is the extent to which the Values of the Constituents increase or decrease to the same degree at the same time. If the correlations among the Constituents change, the level of the Index may be adversely affected.

#### **3.3 The Index may be subject to currency rate risk**

The Index may be exposed to currency rate risk because the Values of the Constituents may be converted into the base currency of the Index for the purposes of calculating the level of the Index if those Values are expressed in a different currency. Currency rates may be volatile and move in an unexpected way. Historical currency rates should not be considered indicative of future currency rates.

### **4. NOTIONAL EXPOSURE**

The Index creates a notional exposure to the Constituents and such notional exposure will only exist in the books and records of the Index Administrator and the Index Calculation Agent.

#### **4.1 No rights**

Investors in Index Linked Products (1) have no legal or beneficial ownership interest in any Constituent and therefore have no recourse to any Constituent; (2) have no right to take delivery of any Constituent; (3) have no voting rights with respect to any Constituent; (4) have no right to receive dividends, distributions or other payments with respect to any Constituent.

#### **4.2 No offer**



Nothing in these Index Conditions constitutes an offer to buy or to sell any Constituent or any other asset, commodity, contract or security (including without limitation any asset, contract, commodity or security included in any Constituent).

#### **4.3 Reinvestment**

Page 40 of 49

If the Index is a “total return index”, it will include the notional reinvestment of amounts calculated by reference to any dividend, distribution or payment that would be received by a holder of a Constituent. If the Index is not a “total return index”, it will not include any such notional reinvestment.

## **5.NO INVOLVEMENT OF PERSONS CONNECTED WITH ANY CONSTITUENT**

The Index does not create any obligation of any person connected with any Constituent (each such person, for the purposes of this paragraph, a “**Relevant Person**”), including without limitation the issuer of any Constituent which is a security, the sponsor or calculation agent of any Constituent which is itself an index, and the provider of any service (such as an investment adviser or an investment manager) to any Constituent which is a fund.

No Relevant Person has participated in the preparation of these Index Conditions or in the arrangement and offer of any Index Linked Product.

## **6.NO INVESTIGATION**

Neither the Index Administrator nor the Index Calculation Agent has made or will make any investigation or enquiry with respect to any Constituent, including with respect to any publicly-available information that is disclosed in these Index Conditions to any Constituent. Consequently there can be no assurance that all events have been disclosed which would affect the performance of the Index or the value of any Index Linked Product.

## **7.EFFECT OF FEES**

The Index Level may include a deduction of notional fees, as described in these Index Conditions. Any such deduction of notional fees will result in the Index underperforming a hypothetical investment portfolio from which no such deduction is made.

## **8.EFFECT OF NOTIONAL COSTS**

The Index Level may include a deduction of notional costs (which may be referred to as a notional cost, charge, spread or similar term), as described in these Index Conditions. Any such deduction of notional costs will result in the Index underperforming a hypothetical investment portfolio from which no such deduction is made.

## **9.DISRUPTION TO THE INDEX**

Certain events may affect the calculation of the Index and the Index Level. These events, which are described elsewhere in these Index Conditions, may have consequences including:

- (1) the Index Calculation Agent following the process described in Part G (*Adjustment of dates*);
- (2) the Index Calculation Agent exercising certain discretions conferred by these Index Conditions;
- (3) the Index Calculation Agent suspending the calculation, publication and dissemination of the Index and the Index Level;

- (4) the Index Administrator making a modification or change to these Index Conditions; and
- (5) the Index Administrator discontinuing and cancelling the Index.

Unless otherwise stated, the Index Administrator has no obligation to inform any person of the result of any action taken on the occurrence of such events.

The occurrence or existence of Disrupted Days may also result in the calculation, publication and dissemination of the Index being postponed to a later time than as provided in these Index Conditions.

## 10. INDEX ADMINISTRATOR AND THE INDEX CALCULATION AGENT

These Index Conditions confer on the Index Administrator and the Index Calculation Agent a degree of discretion in making certain determinations and calculations, for example in connection with the occurrence of disruptions and adjustments. Although each of the Index Administrator and the Index Calculation Agent will use Expert Judgement in exercising any discretion, the exercise of any such discretion may have an adverse effect on the Index Level and therefore may have an adverse effect on the value of any Index Linked Product. Please see Part L (*Miscellaneous*) for further important disclosure of additional general risks (1) as to the manner in which the Index is determined; (2) that neither the Index Administrator nor the Index Calculation Agent acts as fiduciary; and (3) as to certain conflicts of interest.

### Conflicts of Interest

The following material conflicts of interest may exist in respect of a swap or other over-the-counter derivative transaction (an “**Index Swap**”) which references or is otherwise based on the performance of the Index, where your counterparty to the Index Swap (the “**Swap Dealer**”) is either the Index Administrator, the Index Calculation Agent, an affiliate of the Index Administrator, or an affiliate of the Index Calculation Agent.

### 1. DISCRETIONS

As discussed above, the Index Administrator and the Index Calculation Agent are entitled to exercise certain discretions in relation to the Index, including but not limited to the determination of index disruption events. Such determinations may adversely affect the level of the Index and therefore the amount payable under the Index Swap.

### 2. HEDGING

The Swap Dealer expects to hedge its obligations under the Index Swap directly or through one or more of its affiliates. This hedging activity is likely to involve trading in one or more Constituents and Related Instruments. For these purposes, “**Related Instruments**” shall mean the instruments comprising the Constituents and other instruments (such as futures, options and swaps) with returns linked to the performance of the Index, the Constituents or the instruments comprising the Constituents. This hedging activity could affect the value of the Constituents and therefore the level of the Index, and may result in the Swap Dealer or its affiliates receiving a profit, even if the level of the Index declines.

### 3. TRADING ACTIVITIES

The Swap Dealer and its affiliates expect to engage in trading activities related to the Index, the Constituents and Related Instruments, for their own account or for the account of customers, and may exercise remedies or take other action with respect to their interests as they deem appropriate. These trading activities could affect the level of the Index and therefore the value of the Index Swap.

### 4. INDEX FEE

If a fee is deducted in the calculation of the level of the Index (an “**Index Fee**”), the Swap Dealer or its affiliates may receive a payment in addition to any fee payable under the Index Swap. For example, if the Swap Dealer hedges its obligations under the Index Swap by investing (directly or through one of its affiliates) in the Constituents in the same notional amounts as the Index Swap, the amount received by the Swap Dealer in respect of its hedge may exceed the amount payable under the Index Swap by the amount of the Index Fee.

**5. NOTIONAL TRANSACTION COSTS**

If notional transaction costs are deducted in the calculation of the level of the Index (“**Notional Transaction Costs**”), the Swap Dealer or an affiliate may receive a payment in addition to any fee payable under the Index Swap. For example, if the Swap Dealer hedges its exposure under the Index Swap by investing (directly or through one of its affiliates) in the Constituents, and the Notional

Transaction Costs exceed the actual cost incurred by the Swap Dealer in adjusting its hedge, the amount received by the Swap Dealer in respect of its hedge may exceed the amount payable under the Index Swap by some or all of the amount of the Notional Transaction Costs.

## **6. VALUATIONS**

If the Index references notional over-the-counter swaps or other notional over-the-counter transactions, the terms and prices of such notional transactions may be determined by the Index Calculation Agent, based on its view of the prevailing terms and prices for similar transactions in the relevant markets, which may differ from the views of other market participants. Persons involved in making such determinations may have interests which conflict with your interests, and the Index Calculation Agent will not take the Index Swap or your interests into consideration when making such determinations.

## **7. UNAVAILABILITY OF THE INDEX**

In the event that the determination and publication of the Index is suspended or discontinued, or the level of the Index is not available for another reason, the calculation agent of the Index Swap may be required to determine the level of the Index pursuant to the terms of the Index Swap.

## **8. LICENSING FEE**

If the Index includes a Constituent which is an index sponsored by the Swap Dealer or an affiliate of the Swap Dealer (a “**Sub-Index**”), the potential conflicts discussed above may exist in respect of that Sub-Index. If the Index or a Sub-Index is based on a methodology licensed from the Swap Dealer or an affiliate of the Swap Dealer, the Swap Dealer or its affiliate (as relevant) may receive a licensing fee based on the notional amount of the Index Swap.

## **9. SHARING PAYMENTS**

Payments received by the Swap Dealer under the Index Swap, or by the Swap Dealer or its affiliates in connection with the Index, may be shared with third parties.

**THE LIST OF RISK FACTORS OUTLINED IN THIS PART K IS NOT INTENDED TO BE EXHAUSTIVE. ANY EVALUATION OF INDEX LINKED PRODUCTS SHOULD BE MADE ONLY AFTER SEEKING ADVICE FROM INDEPENDENT PROFESSIONAL ACCOUNTING, FINANCIAL, INVESTMENT, LEGAL, REGULATORY, TAX AND OTHER ADVISORS.**

Part L: Miscellaneous

## **1. CALCULATIONS AND DETERMINATIONS**

### **1.1 Calculations**

Unless otherwise specified in the Index Conditions, the Index Calculation Agent will perform all calculations, determinations, rebalancings and adjustments (together, “**Calculations**”) in respect of the Index. Neither the Index Calculation Agent nor the Index Administrator will have any responsibility for errors made in good faith or omissions in Calculations or other actions as provided in these Index Conditions.

The Calculations of the Index Calculation Agent shall be performed by it in accordance with these Index Conditions, acting in its sole, absolute and unfettered discretion, but in good faith and in a commercially reasonable manner (having regard in each case to the criteria stipulated in these Index Conditions and, where relevant, on the basis of information provided to or obtained by employees or officers of the Index Calculation Agent responsible for making relevant Calculations). All Calculations shall, in the absence of manifest error, be final, conclusive and binding on any user of the Index, including any holder of, or counterparty to, an Index Linked Product.

### **1.2 Rounding**

Subject as provided in these Index Conditions, any amount, currency amount, level, percentage, price, rate or value (“**Amount**”) calculated by the Index Calculation Agent shall be rounded to such number of decimal points and in such manner as the Index Calculation Agent determines is appropriate, acting in a commercially reasonable manner.

### **1.3 Use of estimates**

The Index Calculation Agent will perform the Calculations described in these Index Conditions using the information, data sources or factors specified in these Index Conditions and any Amount (together, “**Information**”) and may perform any Calculation and any action required in respect of these Index Conditions in any sequence. However, in the event that the Index Calculation Agent is not able to obtain or use any necessary Information, then (after using reasonable endeavours and after applying any fallback provision specified in these Index Conditions in respect of the relevant Calculation) the Index Calculation Agent may, but shall not be obliged to, use its estimate (made using Expert Judgement) of the relevant Information in performing such Calculation, should the Index Calculation Agent determine that such estimate is reasonably necessary in order to give effect to any provision or to perform any Calculation necessary under these Index Conditions.

### **1.4 No verification of Information**

Although the Index Calculation Agent will obtain Information for inclusion in the Index or for use in performing any Calculation under these Index Conditions from sources that the Index Calculation Agent considers reliable (including databases maintained by the Index Calculation Agent or its Affiliates, and public sources such as Bloomberg and Reuters), the Index Calculation Agent will not publish or independently verify such Information.

### **1.5 Corrections**

Subject to any Correction Period specified, if the Index Calculation Agent becomes aware that any Information used by it in connection with any Calculation under these Index Conditions has subsequently been corrected or adjusted, then the Index Calculation Agent (1) if the Correction Period does not include a Rebalancing Date, shall use such corrected or adjusted Information and as a consequence make any further Calculation that it determines necessary or desirable in order to give effect to or to reflect such corrected or adjusted Information, including without limitation any redenomination, exchange or conversion of any currency into a successor currency; or (2) if the Correction Period includes a Rebalancing Date, may, but shall not be obliged to, use such corrected or adjusted Information (in its Expert Judgement (as defined below)), and the Index Calculation Agent will



exercise such Expert Judgement in a manner that is consistent with the primary objective of the Index.

## **1.6 Reliance**

In performing any Calculation under these Index Conditions, the Index Calculation Agent may rely upon the opinion of any person who appears to it as being competent to value any asset or instrument of any class, or to perform any other calculation or determination, by reason of any appropriate relevant professional qualification or experience.

## **1.7 Dates and times of calculations**

Notwithstanding that certain Calculations under these Index Conditions may be expressed to be “as at”, “as of”, “in respect of” or “on”, or any synonym of each such phrase, a certain date or time, the Index Calculation Agent may perform such Calculation in respect of such date or time after such date or time.

## **1.8 Not acting as fiduciary or agent**

In performing any Calculation or other action in connection with these Index Conditions, each of the Index Administrator and the Index Calculation Agent will act as principal and not as agent of any other person. Neither the Index Administrator nor the Index Calculation Agent owes any duty of care or any fiduciary duty to any investor in any Index Linked Product or to any other person. Each Calculation and other action performed in connection with these Index Conditions by the Index Administrator or the Index Calculation Agent is performed in reliance on this provision and is subject to this provision.

If through performing any such Calculation or other action the Index Administrator or the Index Calculation Agent is rendered an agent or fiduciary of another person under applicable law, then (at the option of the Index Administrator or the Index Calculation Agent, as relevant) the rights and obligations of the Index Administrator or the Index Calculation Agent to perform such Calculation or other action may be suspended (or, if already performed, the application of such Calculation or other action may be suspended) until such time when such Calculation or other action can be performed either by the Index Administrator or the Index Calculation Agent as principal and not as an agent or fiduciary or by an appropriate third party who is both willing and able to perform such Calculation or other action.

## **1.9 Ambiguities, errors and omissions in these Index Conditions**

Although these Index Conditions are intended to be comprehensive, it is possible that ambiguities, errors and omissions may arise in certain circumstances. The Index Administrator will resolve, using Expert Judgement, any such ambiguity, error or omission, and may amend these Index Conditions to reflect the resolution of such ambiguity, error or omission.

## **1.10 Expert Judgement**

Each of the Index Administrator and the Index Calculation Agent, as relevant, shall exercise any discretion and make any determination in respect of the Index by using a standard of judgement (“**Expert Judgement**”) which shall consist of (1) acting in good faith and in a commercially reasonable manner; (2) to the extent practicable, reflecting the commercial objective of the Index and market practice; and (3) to the extent practicable, promoting consistency in the exercise of discretions and the making of determinations in respect of both the Index and other indices in respect of which it acts, as relevant, as index administrator or index calculation agent.

In using Expert Judgement to exercise any discretion or to make any determination, the Index Administrator shall be subject to the oversight of the Index Governance Committee, whose role is described at paragraph 4 (*Index Governance*). In using Expert Judgement to exercise any discretion or to make any determination, the Index Calculation Agent shall be subject to the oversight of the Index Administrator. The Index Governance Committee will review any such use of Expert Judgement in extraordinary circumstances. Each of the Index Administrator and the Index Calculation Agent shall (as relevant) (1) maintain records of any such use of Expert Judgement; and (2) publish a concise

explanation of the extent to which and the basis upon which Expert Judgement was so used.

### 1.11 Errors in Calculations

It is possible that errors in Calculations may arise in certain circumstances. The Index Administrator may determine, using Expert Judgement, to restate the Index Level for each day affected by an error in a Calculation.

## 2. CONFLICTS OF INTEREST

Citi entities perform various roles in connection with the Index and Index Linked Products, and conflicts of interest may arise for any such entity as a consequence of any role it performs in connection with the Index or any Index Linked Product or as a consequence of its activities more generally.

During the normal course of their business, the Index Administrator, the Index Calculation Agent, any of their respective Affiliates, directors, officers, employees, representatives, delegates and agents (each, for the purposes of this Part L (*Miscellaneous*), a “**Relevant Person**”) may enter into, promote, offer or sell securities or contracts (whether or not structured) linked to the Index and/or any Constituent. Any Relevant Person may at any time (1) have long or short principal positions or actively trade (whether or not through making markets to its clients) positions in or relating to the Index or any Constituent; (2) invest in or engage in transactions with or on behalf of other persons relating to the Index and/or any Constituent; (3) undertake hedging transactions (for the purposes of any security or contract) which may adversely affect the level, price or rate or other factor underlying the Index and/or any Constituent; (4) have an investment banking or commercial relationship with the issuer of any Constituent and have access to information from any such issuer; or (5) publish research in respect of any Constituent or the issuer of any Constituent. Such activity may or may not affect the Index Level, but potential investors and counterparties should be aware that a conflict of interest may arise when a person acts in more than one capacity, and such conflict of interest may affect (whether in a positive manner or a negative manner) the Index Level.

## 3. DISCLAIMER

No Relevant Person makes any express or implied representation or warranty as to (1) the advisability of purchasing or entering into any Index Linked Product; (2) the levels of the Index at any particular date or time; (3) the results to be obtained from the use of the Index or any datum included in these Index Conditions for any purpose; or (4) any other matter. Each Relevant Person hereby expressly disclaims, to the fullest extent permitted by applicable law, all warranties of accuracy, completeness, merchantability or fitness for a particular purpose with respect to the Index and any information contained in these Index Conditions. No Relevant Person will have any liability (direct or indirect, special, punitive, consequential or otherwise) to any person even if notified of the possibility of damages.

These Index Conditions have been prepared solely for the purposes of information and nothing in these Index Conditions constitutes (1) an offer to buy or to sell any security or contract, to participate in any transaction or to adopt any investment strategy; or (2) accounting, financial, investment, legal, tax or regulatory advice. Any decision to purchase any Index Linked Product should be based on the information contained in the associated prospectus or offering document (however described). In the case of a prospectus or offering document which contains provisions under the heading “Risk Factors”, “Investment Considerations” or the equivalent, please refer to these provisions for a discussion of the factors that must be considered in connection with an investment in the security or contract described therein.

Neither the Index Calculation Agent nor the Index Administrator is under any obligation to continue to calculate, publish or disseminate the Index or the Index Level.

#### **4. INDEX GOVERNANCE**

The Index Administrator has ultimate control over the development, the operation and the publication of the Index, including the performance of any Calculation, the exercise of any discretion, the making of any determination, and all administrative processes required to perform these functions (together, the “**Index Activity**”). Notwithstanding that certain parts of the Index Activity may be performed by persons other than the Index Administrator, the Index Administrator has overall responsibility for all parts of the Index Activity, subject to this Part L (*Miscellaneous*).

The Index Administrator maintains oversight over the Index Activity through its Index Governance Committee. The Index Governance Committee fulfils its role of ensuring accountability and providing oversight through (1) reviewing and challenging all parts of the Index Activity, in accordance with its charter and its written policies and procedures; and (2) conducting an annual review of the Index to determine whether it continues to be an accurate and reliable representation of the economic realities of the relevant interest or market.

#### **5. INTELLECTUAL PROPERTY**

The Index and these Index Conditions are the Index Administrator’s proprietary and confidential material. No person may reproduce or disseminate the information contained in these Index Conditions, the Index or the Index Level without the prior written consent of the Index Administrator. These Index Conditions are not intended for distribution to or use by any person in a jurisdiction where such distribution is prohibited by applicable law or regulation.

The Index is not in any way sponsored or promoted by any sponsor or issuer, as relevant, of any Constituent.

Part M: Notices

*Index Calculation Agent disclaimer*

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*Constituents disclaimer*

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equation by which any Product is to be converted into cash. None of the Third Party Entities has any obligation or liability in connection with the administration, marketing or trading of the Products.

NONE OF THE THIRD PARTY ENTITIES GUARANTEES THE ADEQUACY, ACCURACY, TIMELINESS OR COMPLETENESS OF THE INDEX OR ANY DATA INCLUDED THEREIN OR ANY COMMUNICATIONS, INCLUDING BUT NOT LIMITED TO, ORAL OR WRITTEN COMMUNICATIONS (INCLUDING ELECTRONIC COMMUNICATIONS) WITH RESPECT THERETO. THE THIRD PARTY ENTITIES SHALL NOT BE SUBJECT TO ANY DAMAGES OR LIABILITY FOR ANY ERRORS, OMISSIONS OR DELAYS THEREIN. THE THIRD PARTY ENTITIES MAKE NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIM ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THEIR TRADEMARKS, THE INDEX OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT WHATSOEVER SHALL ANY OF THE THIRD PARTY ENTITIES BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS, TRADING LOSSES, LOST TIME OR GOODWILL, EVEN IF THEY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER IN CONTRACT, TORT, STRICT LIABILITY OR OTHERWISE.

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